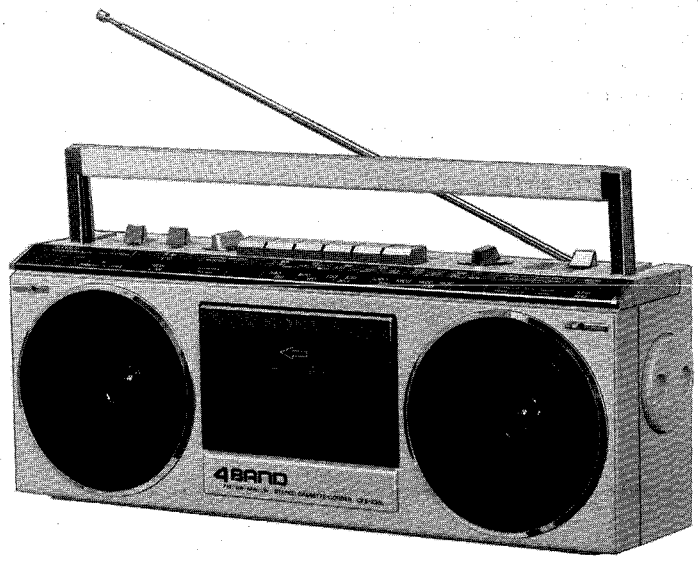
CFS-330L

SERVICE MANUAL

AEP Model
UK Model



SPECIFICATIONS

Radio section

Frequency range	FM 87.6 – 108 MHz SW 5.9 – 18.0 MHz (50.8 – 16.7 m) MW 530 – 1,605 kHz (566 – 187 m) LW 150 – 285 kHz (2,000 – 1,053 m)
Antennas	FM/SW : Telescopic antenna MW/LW : Built-in ferrite bar antenna

Tape recorder section and general

Recording system	4-track 2-channel stereo
Fast winding time	Approx. 2 min. with Sony Cassette C-60
Frequency response	80 – 8,000 Hz
S/N ratio	40 dB
Total harmonic distortion	3%
Speakers	Two approx. 10 cm (4 inches) dia.
Power output	3 W x 2 (max.) at dc operation
Inputs	Auxiliary jacks (phone jacks) sensitivity 0.25 V (-10 dB) input impedance 47 kilohms
Outputs	Headphones jack (stereo phone jack) for 8-ohm impedance headphones
Power requirements	120 V or 220 – 240 V ac adjustable, 50/60 Hz 220 – 240 V ac (110 – 120 V or 220 – 240 V ac adjustable), 50/60 Hz 9 V dc, six batteries IEC designation R20 (size D)
Power consumption	11 W ac
Battery life	Approx. 17 hours of continuous recording with the built-in microphones using Sony New Super batteries SUM-1 (NS)
Dimensions	Approx. 405 x 162 x 102 mm (w/h/d) (16 x 6 1/2 x 4 1/8 inches) incl. projecting parts and controls not incl. handle
Weight	Approx. 3.1 kg (6 lb 14 oz) incl. batteries

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

FM/SW/MW/LW STEREO CASSETTE-CORDER

SONY®

TC

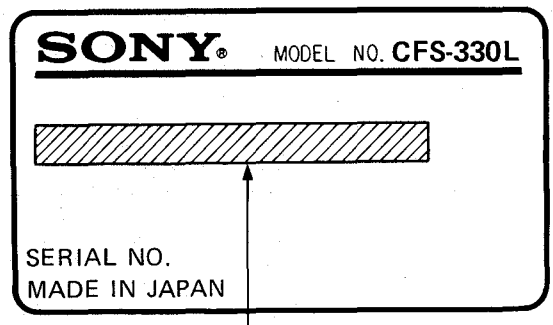
MICROFILM

FEATURES

- A cassette-corder combined with a high-quality 4-band radio.
- Stereo recording and playback system gives high fidelity performance.
- With the Sony variable level recording monitor system, a program to be recorded may be listened to at any desired sound VOLUME and TONE controls setting without affecting the recording.
- Automatic shut-off mechanism activates at the end of the tape in either the record or playback mode.
- Pause function to momentarily stop the tape transport.
- Built-in electret condenser microphones for picking up sound with true fidelity.
- Two different power sources: batteries and house current.

MODEL INDENTIFICATION

– Specification Label –



AC: AEP model: 120 V/220 – 240 V 50/60 Hz 11W
UK model: 240 V 50/60 Hz 11W
DC: 9 V..... FLASHLIGHT BATT R20(D) x 6
OR EQUIV

LOCATION AND FUNCTION OF CONTROLS

❶ **FM MODE selector:** Normally set this selector to STEREO, Set it to MONO when it is hard to hear the broadcast due to noise.

❷ **FUNCTION selector**

RADIO/AUX: for listening to or recording radio programs or program source connected to the AUX jacks.

TAPE
RADIO: for playing back the tape, or for recording from the built-in
OFF
microphones.

- Be sure to set the FUNCTION selector to TAPE RADIO OFF when the set is not in use. (This position is **power off** for the radio when the tape operation mode select buttons are in the neutral position.)

❸ **TONE control:** Turn towards HIGH for more treble and towards LOW for less treble.

❹ **Tape operation mode select buttons**

❚❚ PAUSE button: Depress to momentarily stop the tape during recording or playback. To restart, press it again.

- To stop the tape for an extended time, use the ■ ⏏ STOP/EJECT button.

■ ⏏ STOP/EJECT button: Press to stop the tape and to release the locked button. Press again to open the cassette holder.

- The ❚❚ PAUSE button cannot be released by this button.

◀◀ F.FWD (fast forward) button: Depress to rapidly advance the tape. To put the recorder in cue mode, leave the ◀ PLAY button depressed and press this button down lightly.

▶▶ REW (rewind) button: Depress to rewind the tape. To put the recorder in review mode, leave the ◀ PLAY button depressed and press this button down lightly.

◀ PLAY button: Depress for playback.

● RECORD button: Depress to record.

❺ **Telescopic antenna:** Used for FM or SW reception.

❻ **VOLUME control:** Turn clockwise for more volume.

❼ **BAND SELECTOR:** Choose the desired band; FM, MW, SW or LW.

❽ **TUNING knob and dial scale:** Turn to select the frequency of the desired station.

❾ **Battery compartment (rear)**

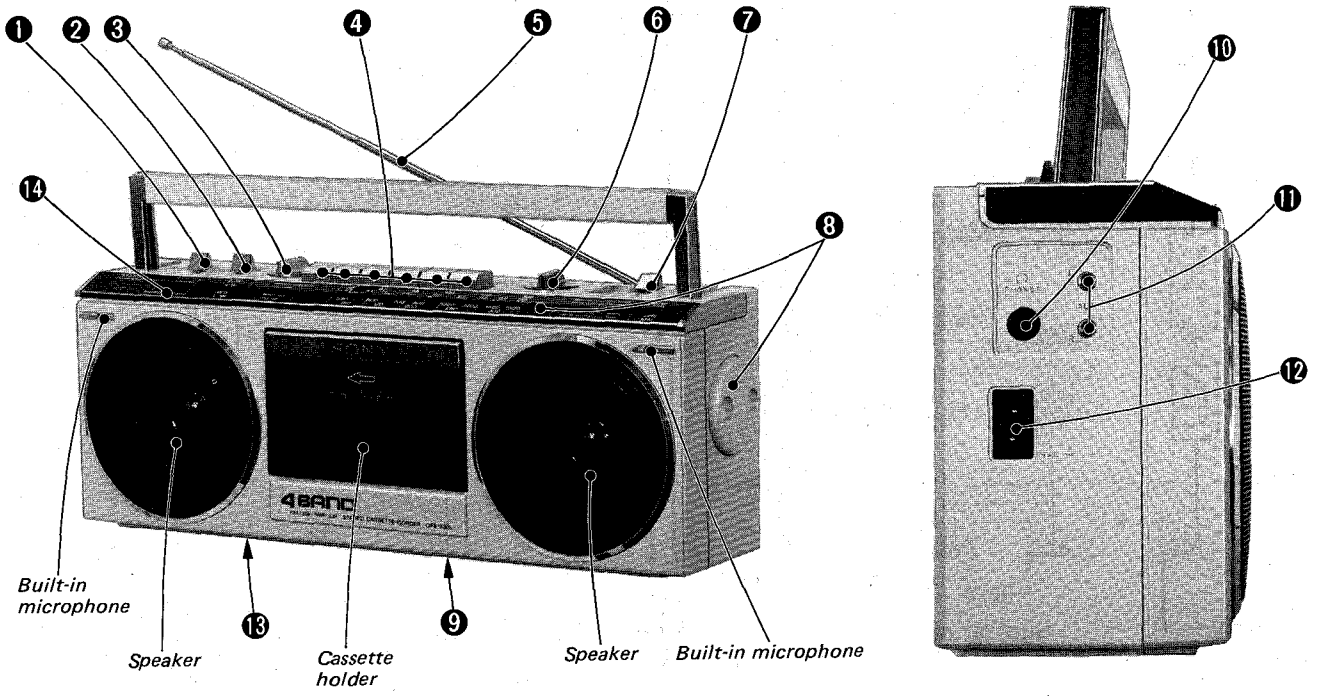
❿ **∩ PHONES :** MONITOR

⓫ **AUX (auxiliary) jacks:** Phono jacks for listening to or recording from a stereo amplifier or another tape recorder.

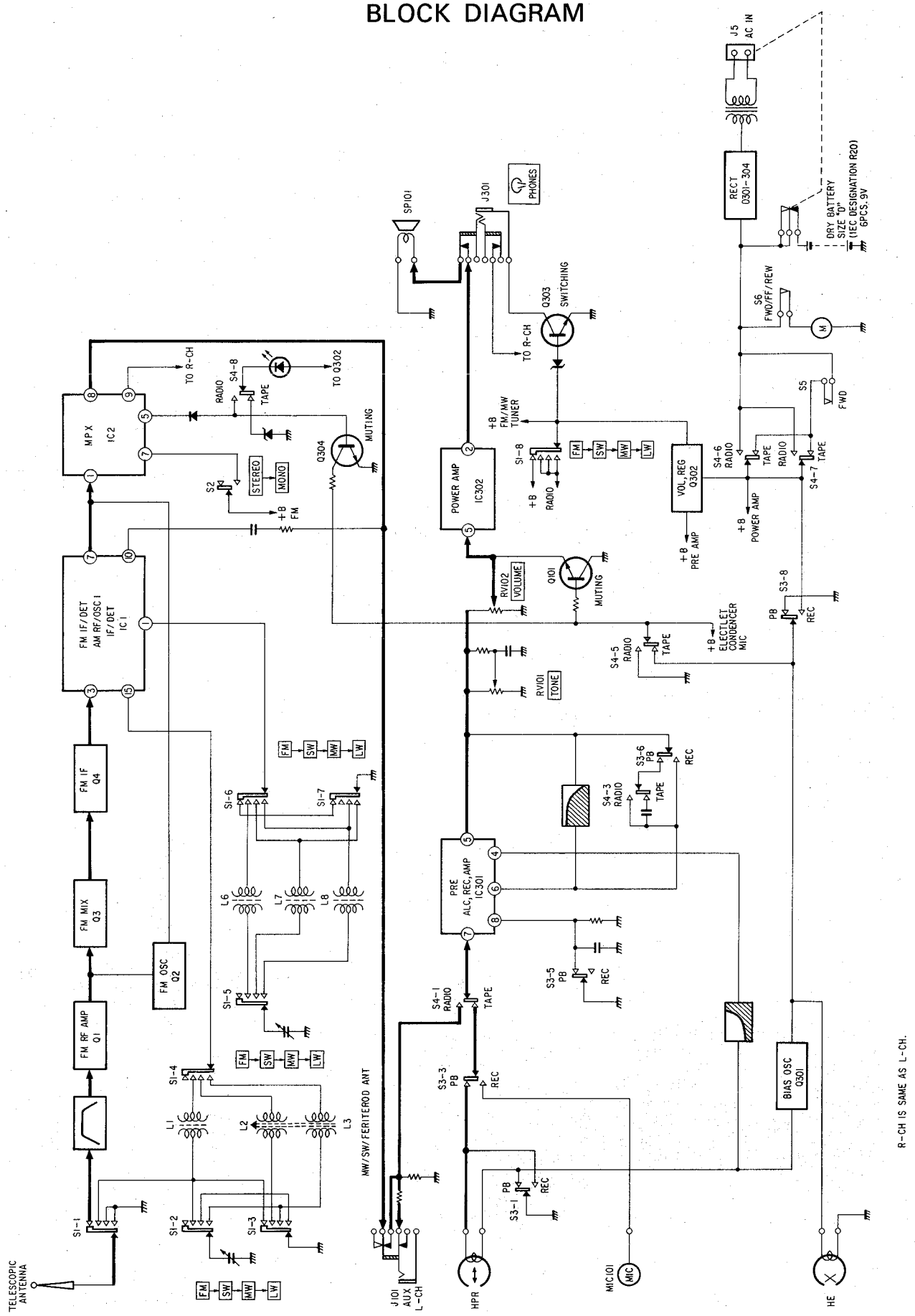
⓬ **AC~connector:** Connect the supplied AC power cord for ac operation.

⓭ **VOLTAGE SELECTOR**

⓮ **OPR/FM STEREO (operation/FM stereo) indicator:** Lights up to show operation.



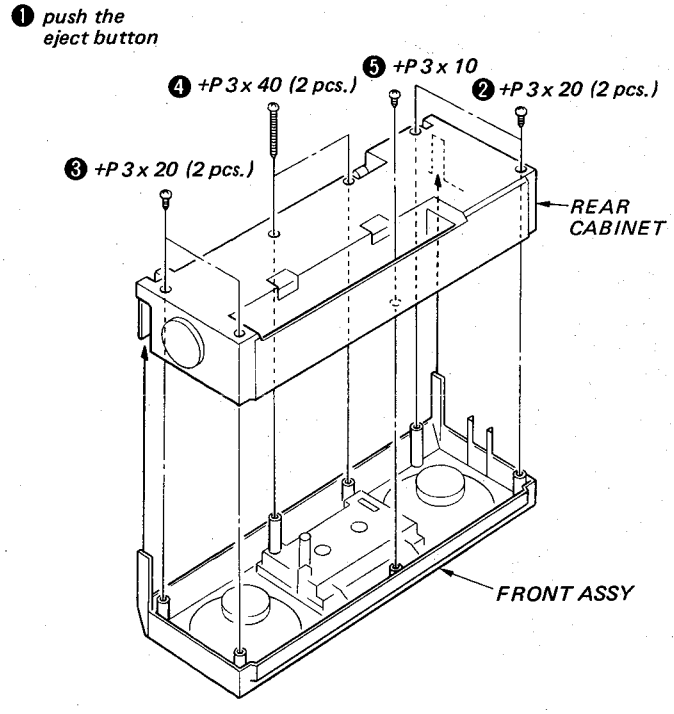
SECTION 1
BLOCK DIAGRAM



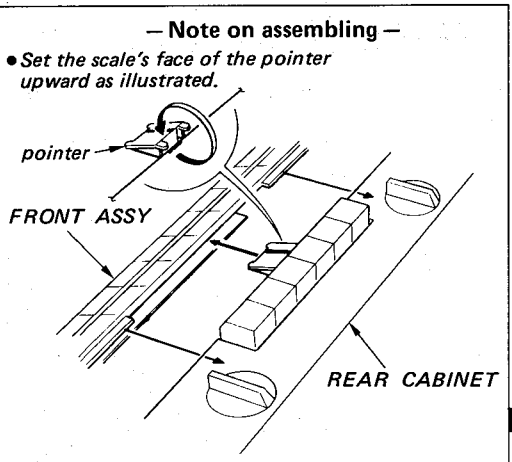
SECTION 2
DISASSEMBLY

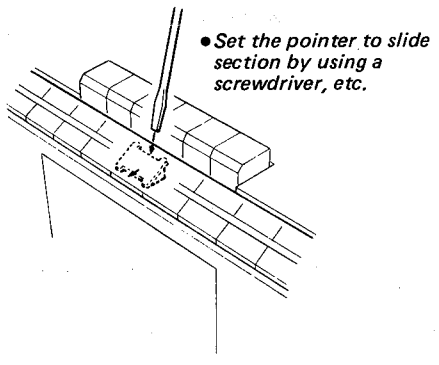
Note: Follow the disassembly procedure in the numerical order given.

CABINET



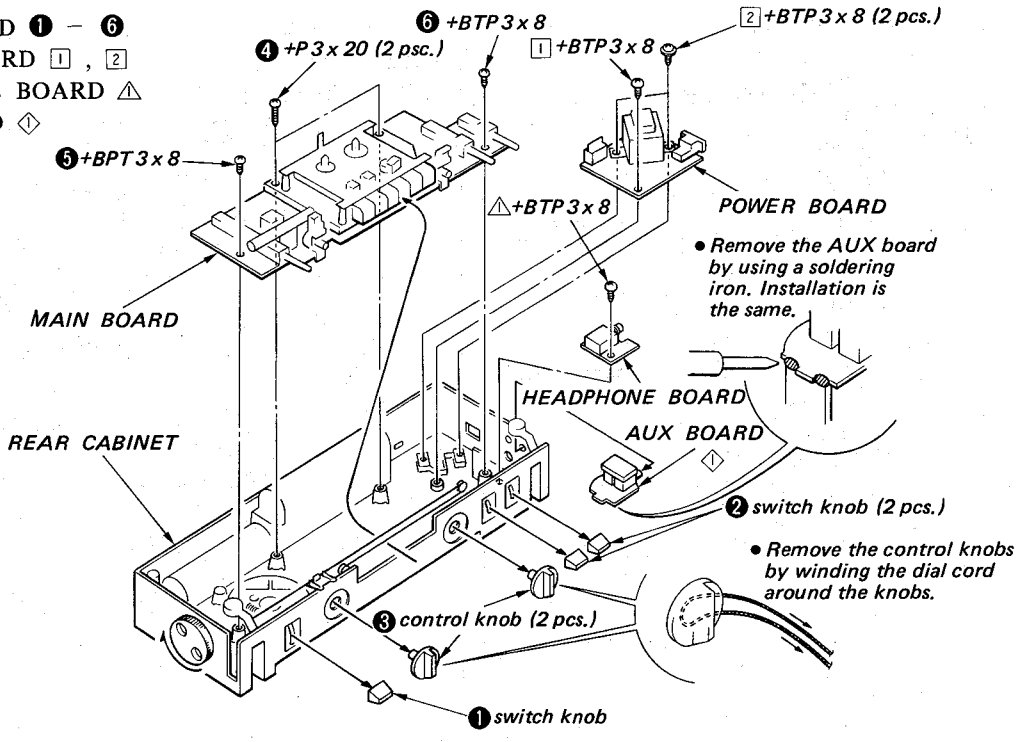
— Note on assembling —



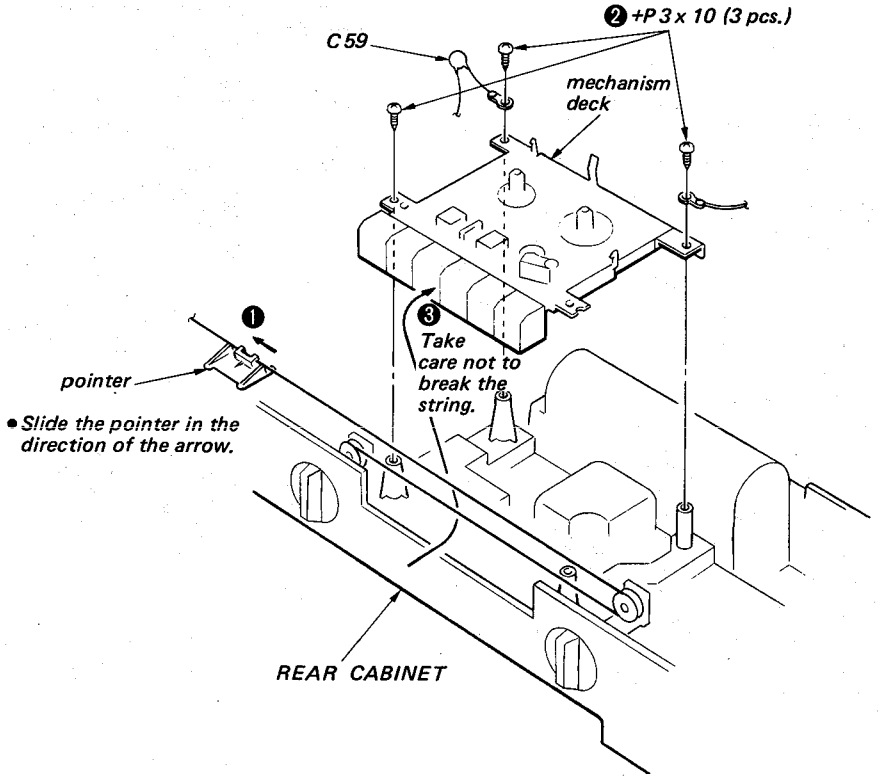


MAIN BOARD/POWER BOARD/HEADPHONE BOARD/AUX BOARD

MAIN BOARD ❶ – ❻
POWER BOARD [1] , [2]
HEADPHONE BOARD ⚠
AUX BOARD ◇

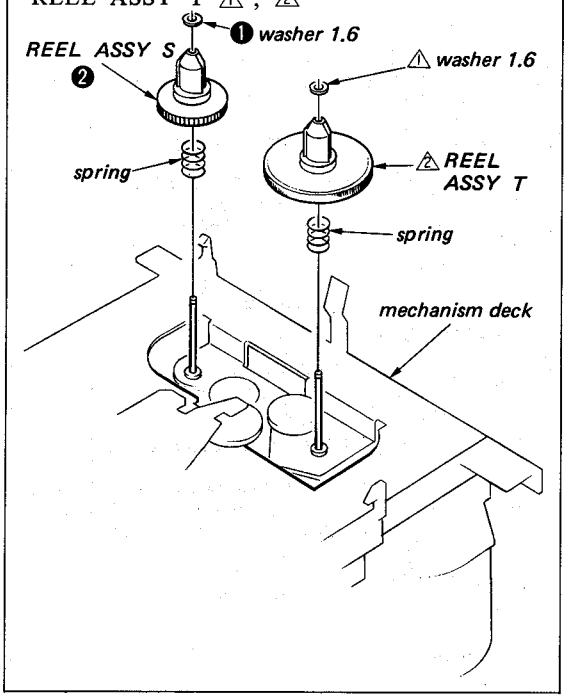

❻ +BTP 3 x 8
[2] +BTP 3 x 8 (2 pcs.)
❹ +P 3 x 20 (2 psc.)
[1] +BTP 3 x 8
❺ +BPT 3 x 8
⚠ +BTP 3 x 8
POWER BOARD
• Remove the AUX board by using a soldering iron. Installation is the same.
MAIN BOARD
HEADPHONE BOARD
AUX BOARD
REAR CABINET
❷ switch knob (2 pcs.)
• Remove the control knobs by winding the dial cord around the knobs.
❸ control knob (2 pcs.)
❶ switch knob

MECHANISM DECK


❷ +P 3 x 10 (3 pcs.)
C59
mechanism deck
❸ Take care not to break the string.
❶
pointer
• Slide the pointer in the direction of the arrow.
REAR CABINET

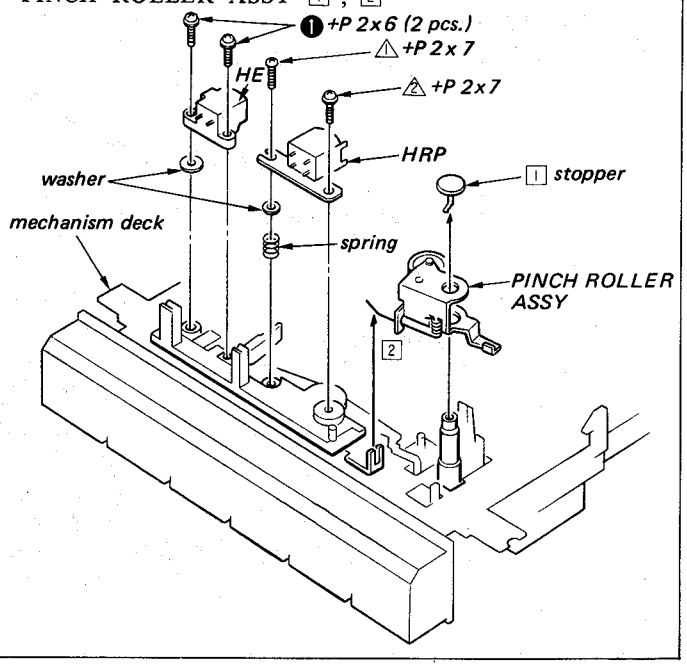
REEL ASSY S/REEL ASSY T

REEL ASSY S ❶ , ❷
REEL ASSY T △1 , △2

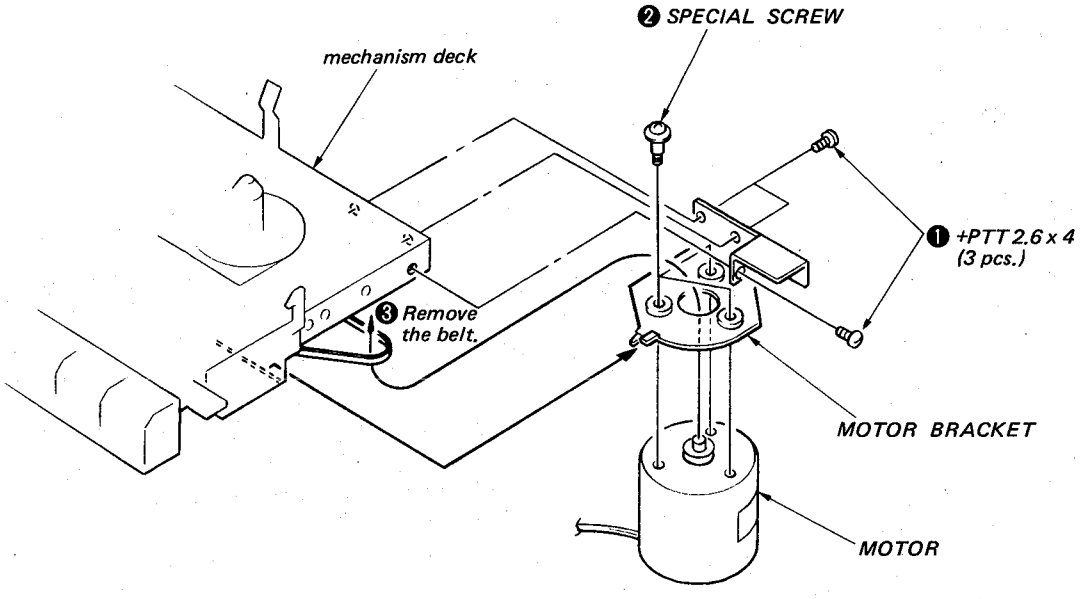


HE HEAD/HRP HEAD/PINCH ROLLER ASSY

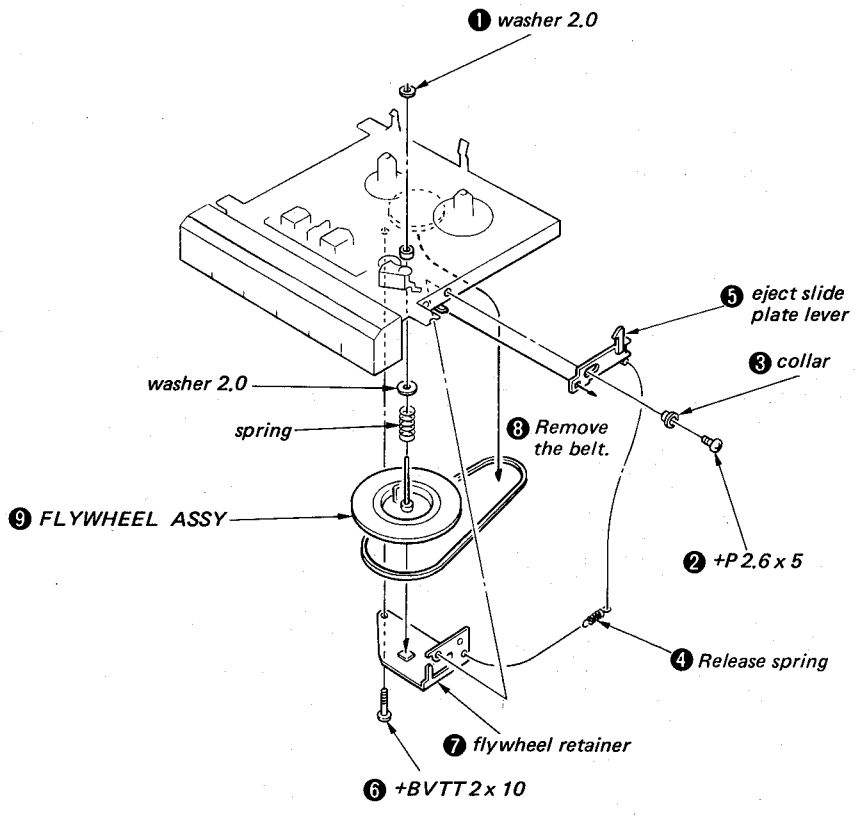
HE HEAD ❶
HRP HEAD △1 , △2
PINCH ROLLER ASSY [1] , [2]



MOTOR

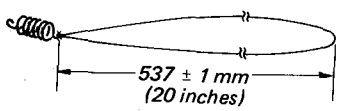


FLYWHEEL ASSY

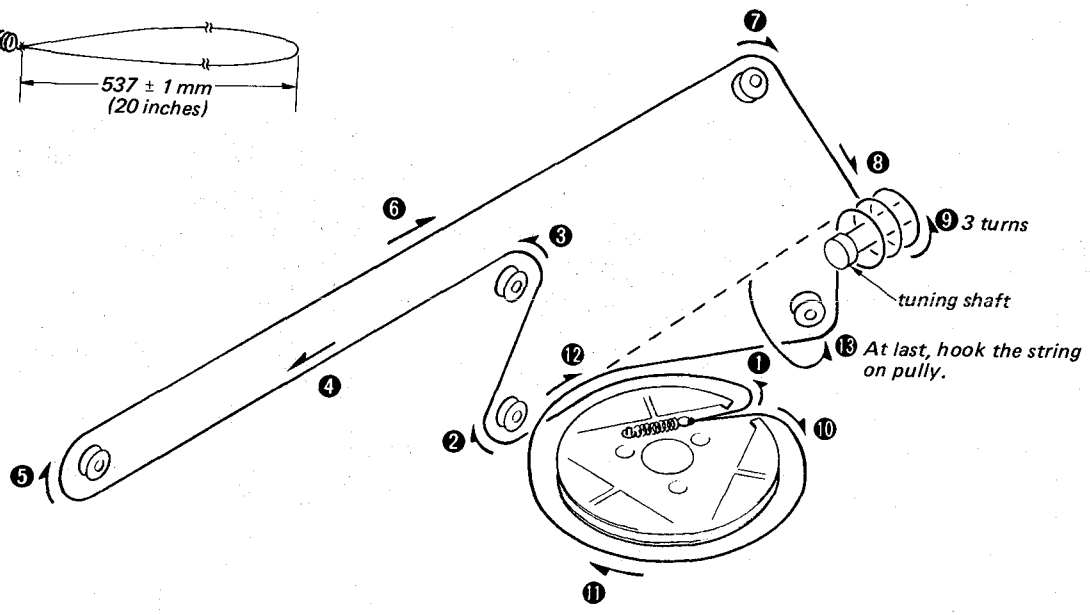


DIAL CORD STRINGING

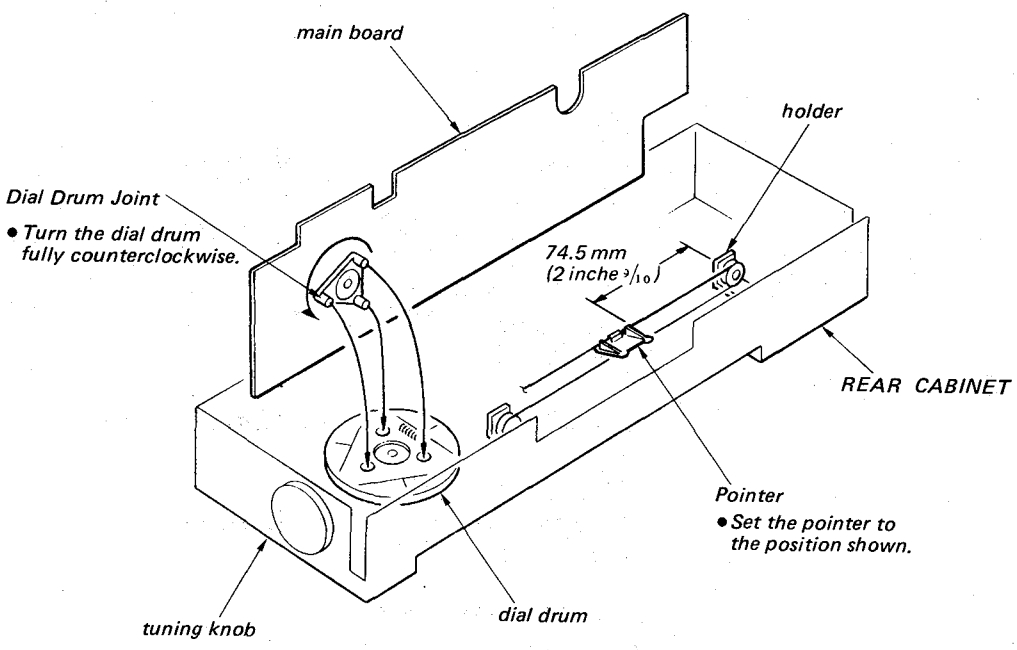
1) Preparation



2) Stringing



POINTER SETTING



SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers

2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque meter	Meter reading
FWD	CQ-102C	40 – 70 g•cm (0.55 – 0.97 oz•inch)
FWD Back Tension	CQ-102C	2 – 5.5 g•cm (0.02 – 0.076 oz•inch)
FF, REW	CQ-201B	80 – 125 g•cm (1.1 – 1.7 oz•inch)

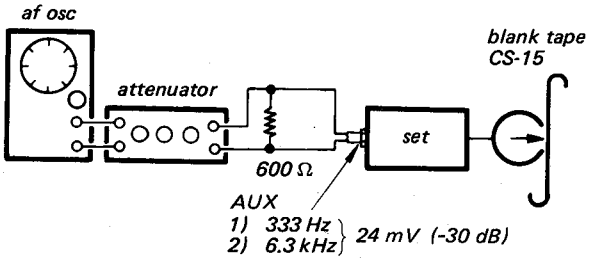
Record Bias Adjustment

Setting:

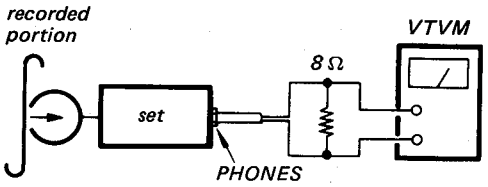
TONE control: HIGH

Procedure:

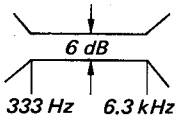
1. Mode: record



2. Mode: playback

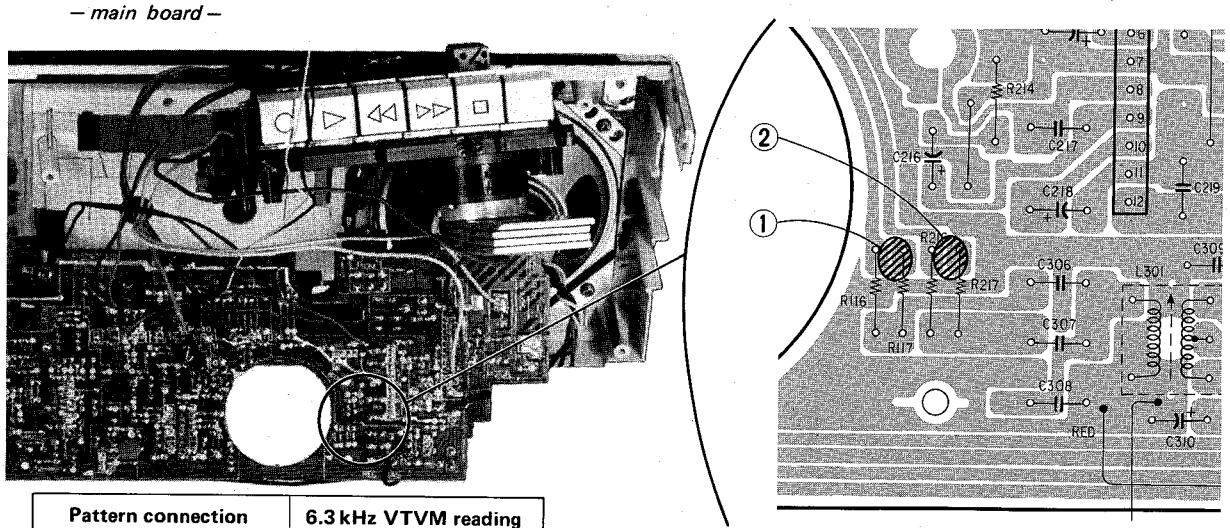


3. Confirm that the 6.3 kHz playback signal level is relative to the 333 Hz signal.
   If necessary, unsolder the adjustment part.
   Repeat steps 1 – 3.



Adjustment Location:

– main board –



Pattern connection	6.3 kHz VTVM reading
Lch ①	DOWN
Rch ②	

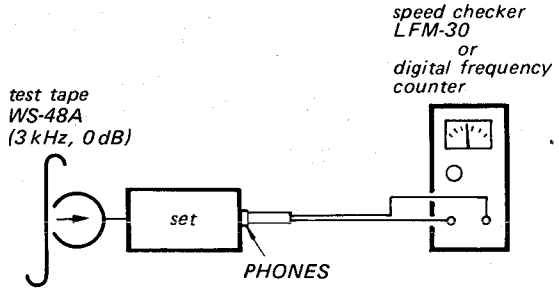
Tape Speed Adjustment

Setting:

VOLUME control: mechanical mid

Procedure:

Mode: playback

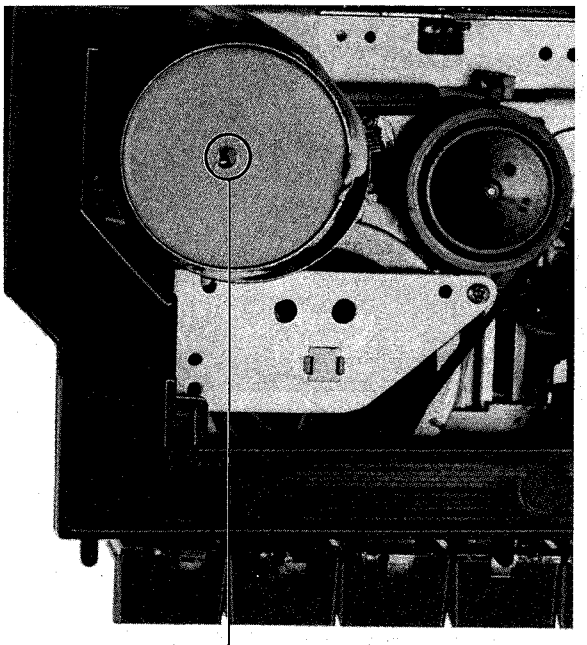


Specification:

Speed checker	Digital frequency counter
−2.5 to +3%	2,925 to 3,090 Hz

Frequency difference between the beginning and the end of the tape should be within 1 % (30 Hz).

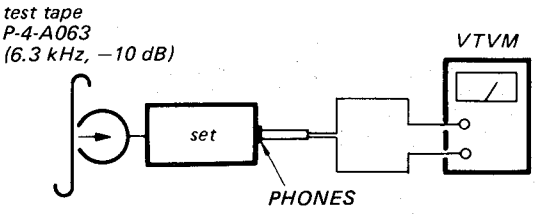
Adjustment Location:



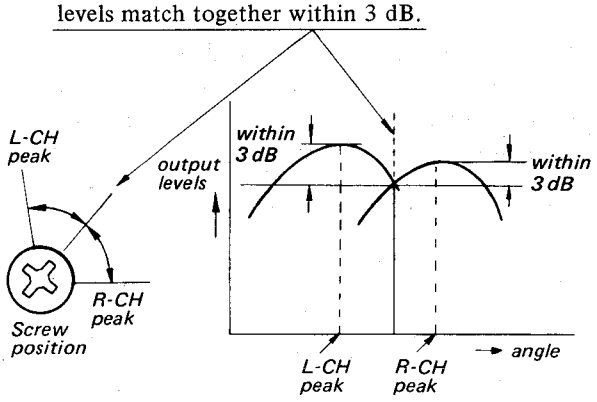
Record/playback Head Azimuth Adjustment

Procedure:

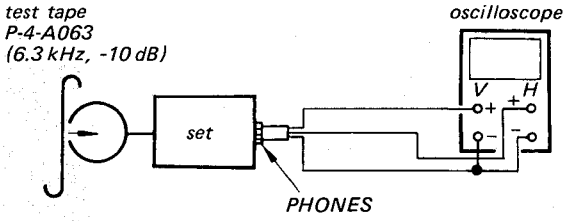
1. Mode: playback

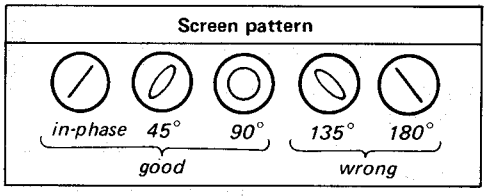


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 3 dB.

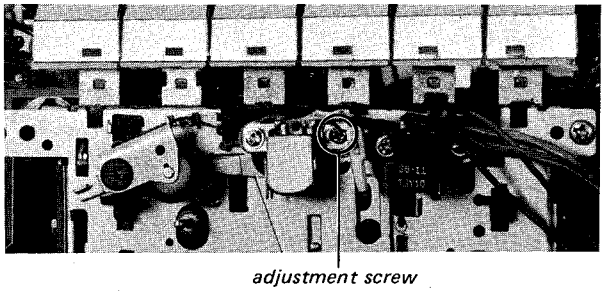


3. Phase Check
Mode: playback





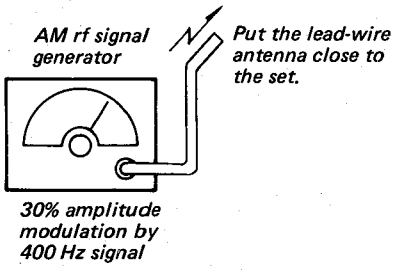
Adjustment Location:

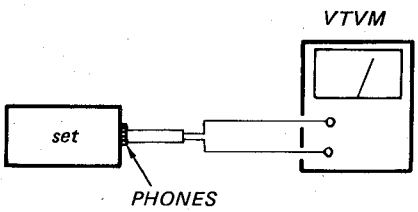


• RADIO SECTION

MW

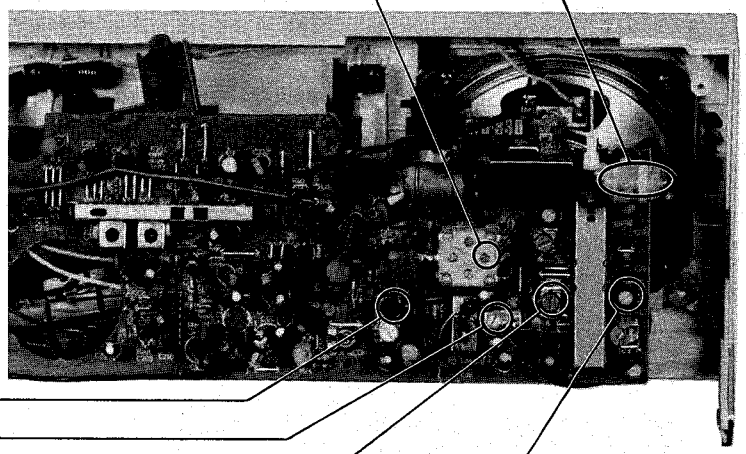
- Power supply voltage: DC 9 V





- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
1,400 kHz	600 kHz
CT3	L3



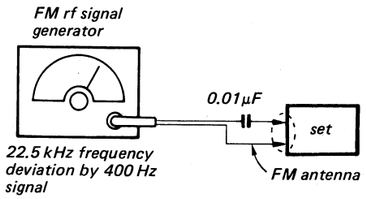
MW IF ALIGNMENT	
Adjust for a maximum reading on VTVM.	
468 kHz	L10
	CFZ

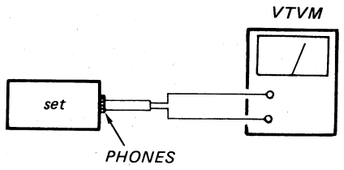
L7	CT7
515 kHz	1,660 kHz
Adjust for a maximum reading on VTVM.	
MW FREQUENCY COVERAGE ADJUSTMENT	

CFS-330L

FM

- Power supply voltage: DC 9 V

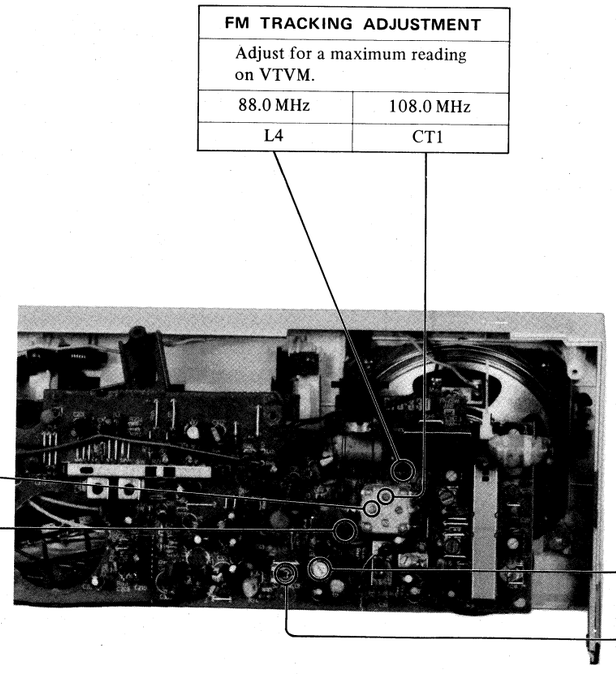




- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

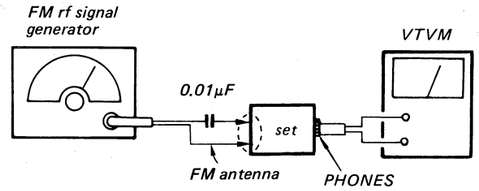
FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
88.0 MHz	108.0 MHz
L4	CT1

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
87.0 MHz	108.8 MHz
L5	CT2



FM DISCRIMINATOR ADJUSTMENT

Procedure:



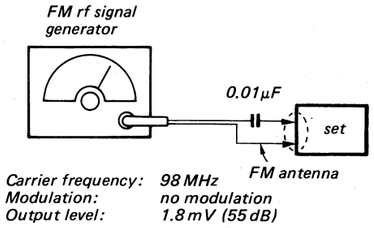
Carrier frequency: 98 MHz
Modulation: 1 kHz (30%), ±22.5 kHz deviation
Output level: 1.8 mV (55 dB)
Mode: monoural

1. Tune in 98 MHz signal.
2. Adjust L11 so that the oscilloscope waveform is symmetrical.

VCO Adjustment

A) Regular Method

Procedure:



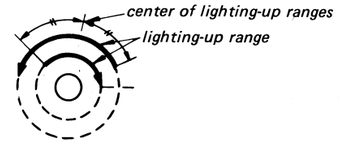
Carrier frequency: 98 MHz
Modulation: no modulation
Output level: 1.8 mV (55 dB)

1. Tune the set to 98 MHz.
2. Adjust RV1 for 38 kHz $^{+0.1}_{-0.5}$ kHz on the counter.

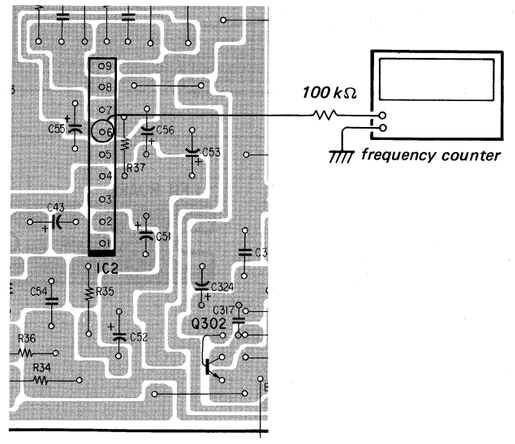
B) Simple Method

Procedure:

1. Tune the set to the FM stereo signal.
2. Tune RV1 clockwise or counterclockwise and memorize the lighting-up range of the stereo lamp.
3. Secure RV1 at the center of the lighting-up range of both turns as shown below.



Adjustment Location: Main board



T

VTVM

ONES

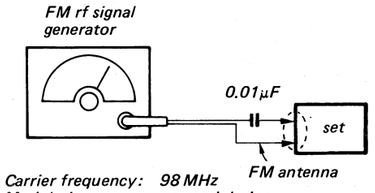
deviation

e waveform is

VCO Adjustment

A) Regular Method

Procedure:

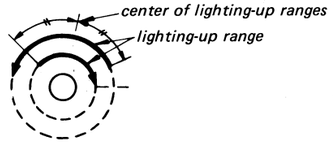


1. Tune the set to 98 MHz.
2. Adjust RV1 for 38 kHz $\overset{+0.1}{-0.5}$ kHz on the counter.

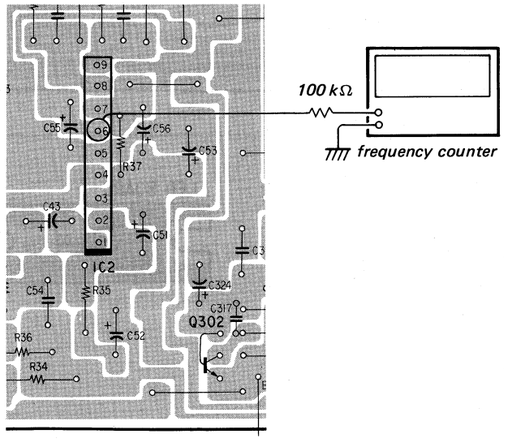
B) Simple Method

Procedure:

1. Tune the set to the FM stereo signal.
2. Tune RV1 clockwise or counterclockwise and memorize the lighting-up range of the stereo lamp.
3. Secure RV1 at the center of the lighting-up range of both turns as shown below.

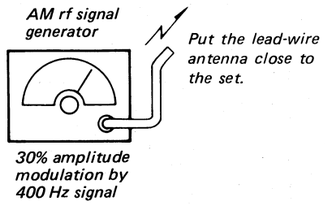


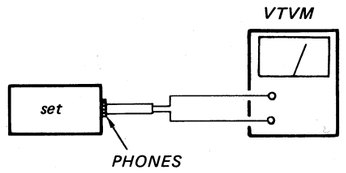
Adjustment Location: Main board



SW/LW

- Power supply voltage: DC 9 V

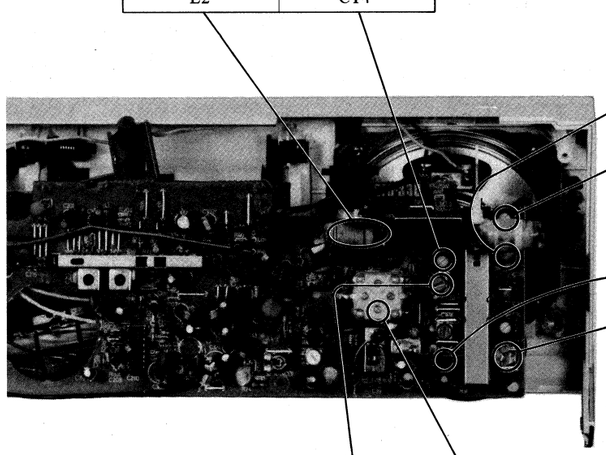




- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
160 kHz	300 kHz
L2	CT4

SW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
6 MHz	17 MHz
L1	CT5

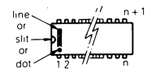


LW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L8	145 kHz
CT8	320 kHz

L6	CT6
5.9 MHz	18.5 MHz
Adjust for a maximum reading on VTVM.	
SW FREQUENCY COVERAGE ADJUSTMENT	

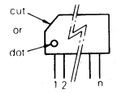
• Semiconductor Lead Layouts

TA7668AP
UPC1222C



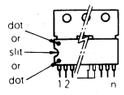
(Top view)

TA7343P



TA7232P

TA7232AP



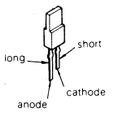
(Marking side view)

2SC945-L
2SC1815-Y
2SC2001

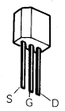
2SC1923

1N4002
1S1555
RD3.3
RD3.9E-B
RD6.2E-B1
SD117

TLR205



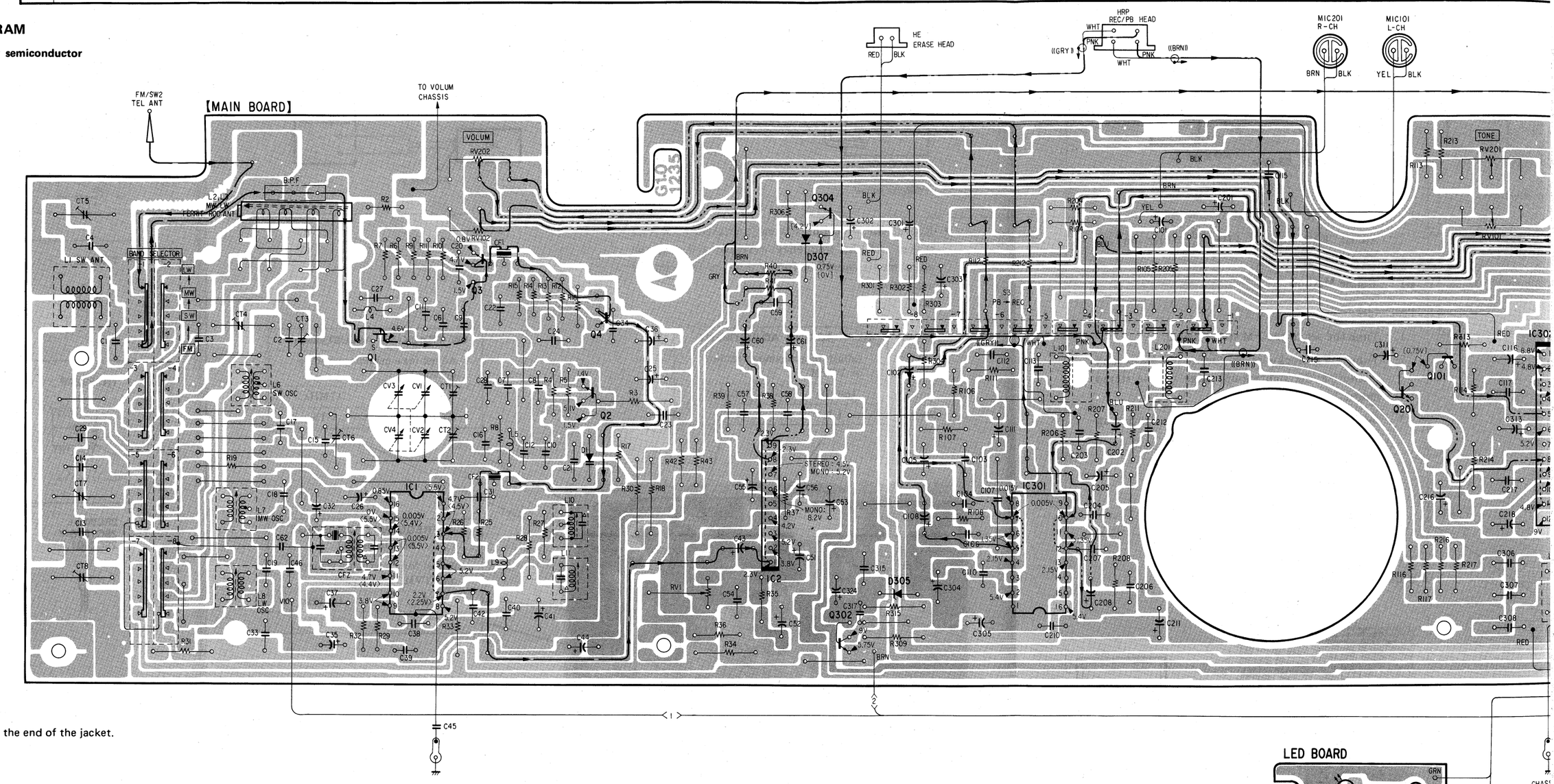
2SK161



SECTION 4
DIAGRAMS

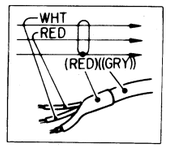
4-1. MOUNTING DIAGRAM

- **Refer to page 15 for semiconductor lead layouts.**



Note:

- Color code of sleeving over the end of the jacket.



- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- [ ]— : indicates side identified with part number.
- ▒▒ : B + pattern
- ▬▶▬ : signal path
- ▬▶▬ : L-CH signal path
- ▬▶▬ : R-CH signal path

11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27

4		5			6		
	IC301	201	101	IC302	301		Q IC
305						2 3	D

A	B	C	D	E	F	G	H	I	J

HE
ERASE HEAD

HRP
REC/PB HEAD

MIC201 R-CH
MIC101 L-CH

【AUX BOARD】

J101 L — AUX — R J201

【HEADPHONE BOARD】

SP101 L-CH
SP201 R-CH
J301 PHONES
Q303 DDTC
D306 3V

S6 FWD/FF/REW
S5 FWD
S3 PB→REC
S2 FM MODE MONO STEREO
S4 FUNCTION TAPE RADIO/AUX

TOTAL CURRENT
FM : 70mA
SW2 SW1 : 55mA
MW
FWD : 140mA
FF : 45mA
REW : 55mA
REC : 180mA

LED BOARD
D3 OPERATION/FM STEREO

CHASSIS

M1 MOTOR

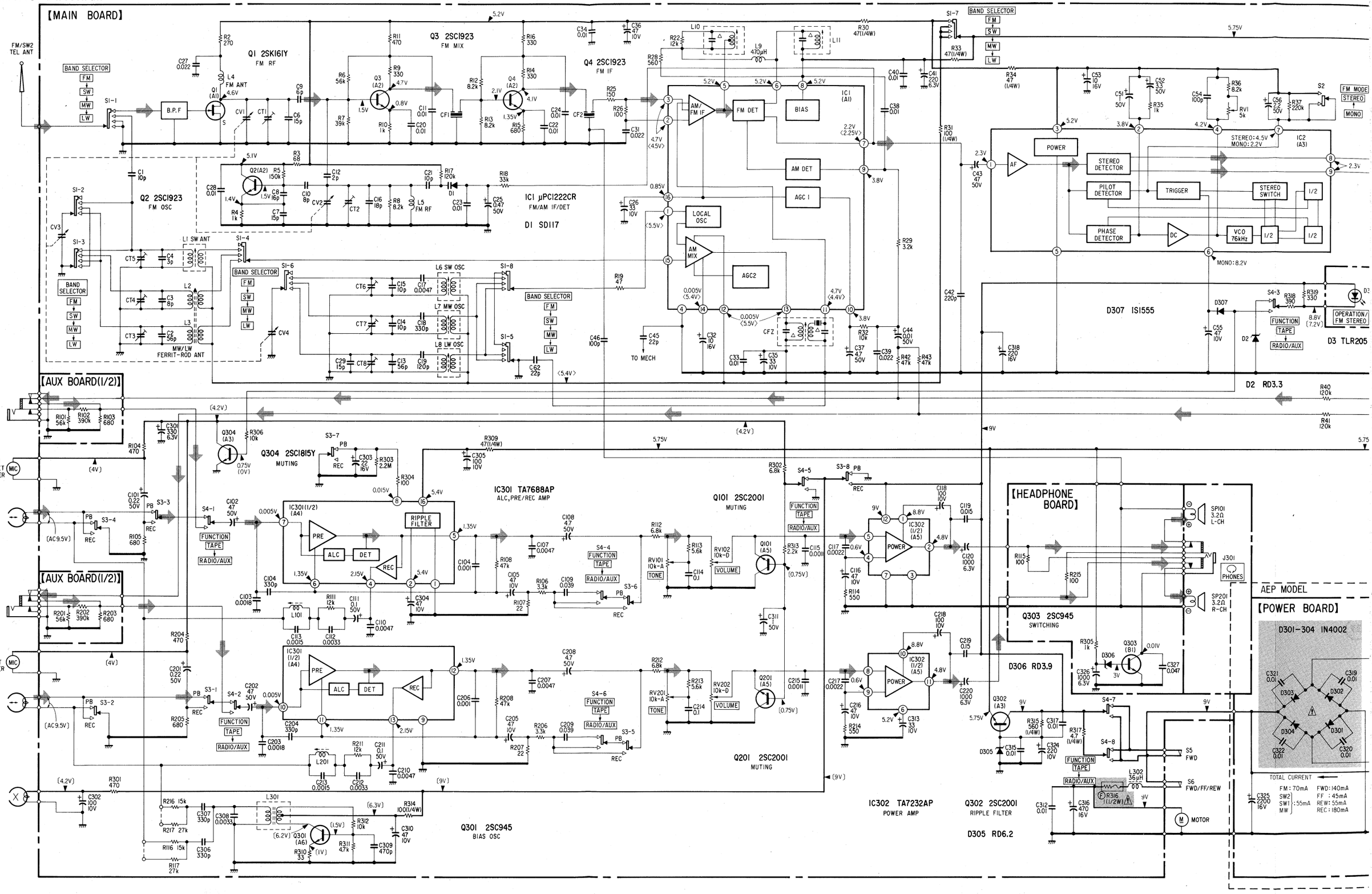
BATTERY
SIZE "D"
(IEC DESIGNATION R20)
6CPS. 9V

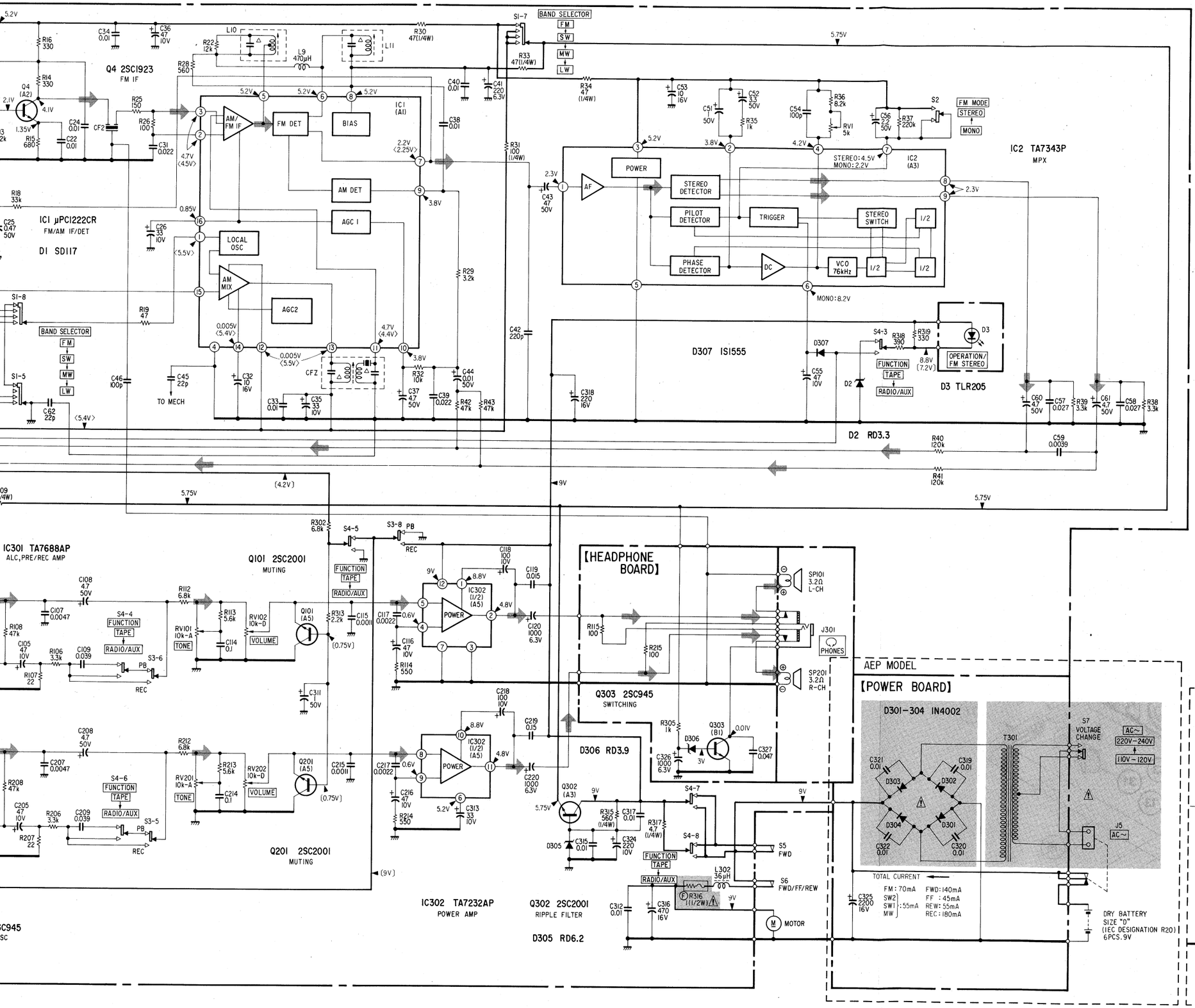
AEP MODEL
【POWER BOARD】
D304 D301 D303 D302
T301
S7
AC 110V 120V 220V 240V
J5 AC~

UK MODEL
【POWER BOARD】
D304 D301 D303 D302
T301
J5 AC~

B	
Q	D
303	306
	304
	301
	303
	302

4-2. SCHEMATIC DIAGRAM





Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- △ : internal component.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- ——— : B+ bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (50kΩ/V).
  NO MARK: FM
  ( ) : FWD
  [ ] : REC
  < > : SW, MW, LW
- Voltage variations may be noted due to normal production tolerances.
- AC voltage readings in the bias oscillator with a VTVM.
- Total current is measured with no cassette installed.
- Switches

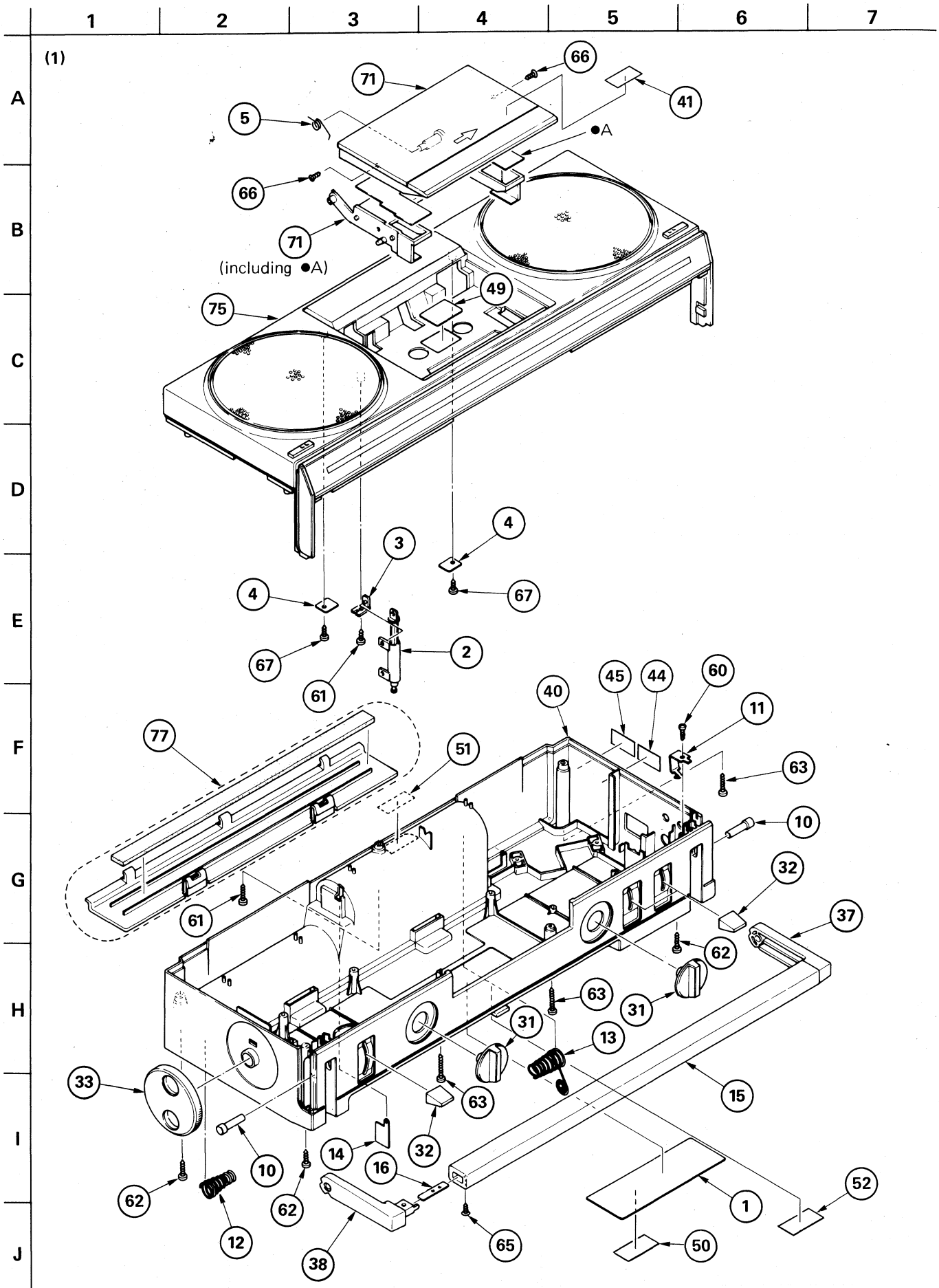
Ref. No.	Switch	Position
S1	BAND SELECTOR	FM
S2	FM MODE	STEREO
S3	REC/PB	PB
S4	FUNCTION	TAPE
S5	FWD/FF/REW	OFF
S6	FWD	OFF
S7	VOLTAGE SELECTOR	110 V – 120 V

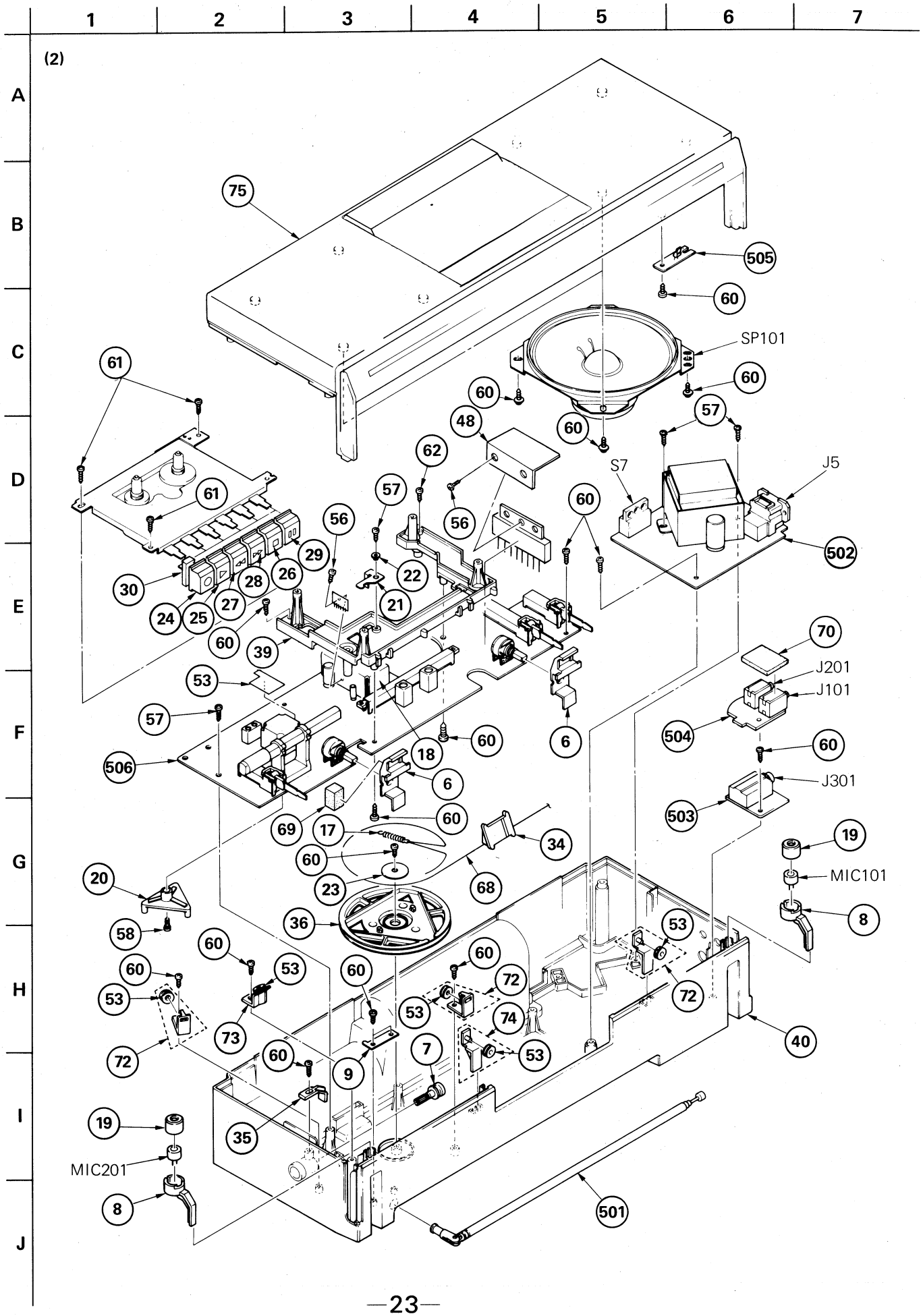
- ➡ : signal path

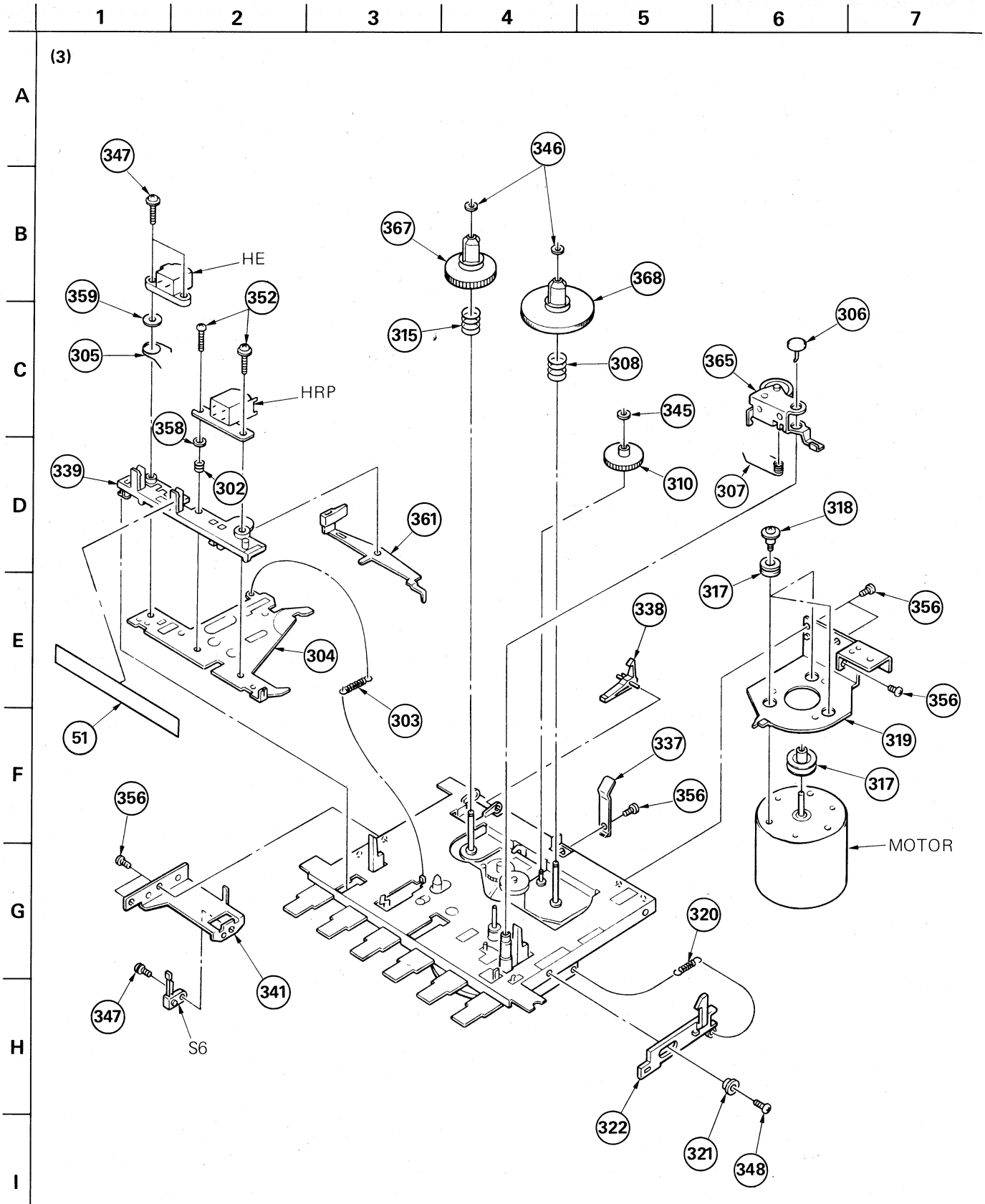
Note: Voltages are measured with a VOM (50kΩ/V).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

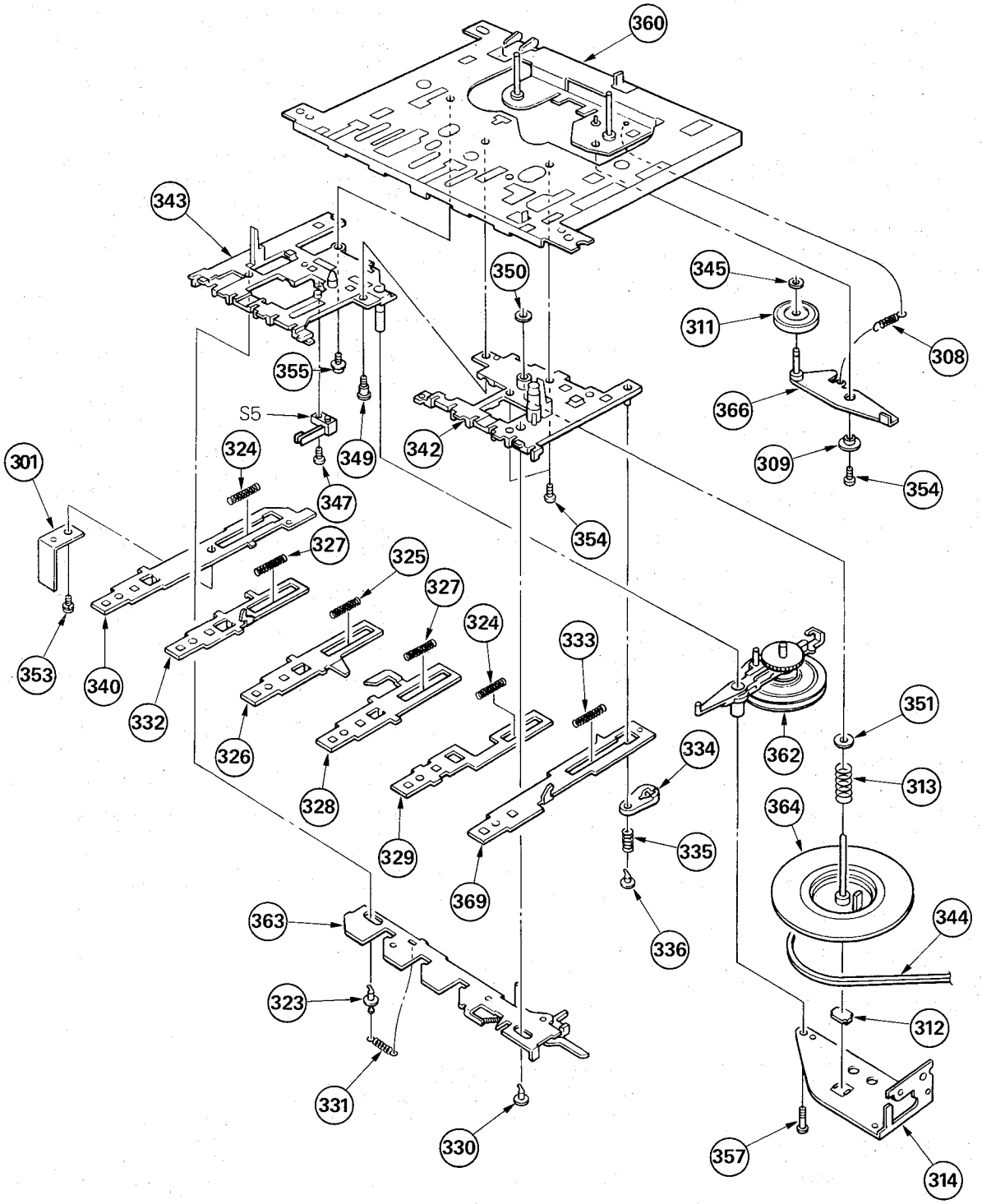
SECTION 5
EXPLODED VIEWS AND PARTS LIST




(2)
1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
J
75
505
60
SP101
61
48
62
57
56
S7
J5
502
29
26
28
27
30
24
25
22
21
39
53
70
J201
J101
504
506
18
6
69
17
34
68
20
58
36
23
19
MIC101
8
503
J301
72
73
74
7
9
35
MIC201
501
40


1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
J
(3)
347
346
367
HE
368
359
352
315
308
306
305
HRP
365
345
358
310
307
339
302
318
361
317
356
338
304
356
303
319
51
337
317
356
MOTOR
320
341
347
S6
322
321
348

(4)


360
343
350
345
311
308
355
S5
349
342
366
309
354
301
324
347
354
327
325
327
324
333
353
340
332
326
328
329
369
334
335
336
362
351
313
364
344
363
323
331
330
312
357
314

GENERAL SECTION

No.	Part No.	Description
1	3-316-504-01	(AEP:SILVER)....LABEL, MODEL NUMBER
1	3-316-504-11	(AEP:PEARL).....LABEL, MODEL NUMBER
2	3-316-507-01	DAMPER, AIR
3	3-316-508-01	HOLDER, AIR DAMPER
4 ♦	3-316-509-01	RETAINER, HOLDER
5	3-316-510-01	SPRING
6 ♦	3-316-511-01	HOLDER, CONTROL
7	3-316-514-01	SHAFT, TUNING
8	3-316-515-01	HOLDER, ECM
9	3-316-516-01	HOLDER, ANTENNA
10	3-316-517-01	SHAFT, HANDLE
11	3-316-518-01	SPRING
12	3-316-519-01	SPRING
13	3-316-520-01	SPRING
14	3-316-521-01	TERMINAL BOARD, BATTERY
15	3-316-523-01	(SILVER)...HANDLE
15	3-316-523-11	(PEARL)....HANDLE
16	3-316-524-01	BRACKET, HANDLE
17	3-316-529-01	SPRING
18 ♦	3-316-530-01	HEAT SINK
19	3-316-532-01	CUSHION, MICROPHONE
20	3-316-533-01	JOINT, DIAL DRUM
21 ♦	3-316-536-01	LEVER, REC
22 ♦	3-316-537-01	SPACER, REC
23	3-316-538-01	WASHER, DRUM
24	3-316-539-01	BUTTON (REC), MD CONTROL
25	3-316-540-01	BUTTON (PLAY), MD CONTROL
26	3-316-541-01	BUTTON (STOP), MD CONTROL
27	3-316-542-01	BUTTON (REW), MD CONTROL
28	3-316-543-01	BUTTON (F.FWD), MD CONTROL
29	3-316-544-01	BUTTON (PAUSE), MD CONTROL
30	3-316-545-01	BUTTON (INNER), MD CONTROL
31	3-316-546-01	KNOB, CONTROL
32	3-316-547-01	KNOB, SWITCH
33	3-316-548-01	(SILVER)....KNOB, TUNING
33	3-316-548-11	(PEARL).....KNOB, TUNING
34	3-316-549-01	POINTER
35	3-316-550-01	STOPPER, TUNING SHAFT
36	3-316-556-01	DRUM, DIAL
37	3-316-557-01	PLATE (LEFT), SIDE, HANDLE
38	3-316-558-01	PLATE (RIGHT), SIDE, HANDLE
39 ♦	3-316-562-01	BRACKET, MD
40	3-318-046-41	(AEP:SILVER)...CABINET REAR
40	3-318-046-51	(AEP:PEARL)....CABINET REAR
40	3-318-046-61	(UK:SILVER)....CABINET REAR
40	3-318-046-71	(UK:PEARL).....CABINET REAR

GENERAL SECTION

No.	Part No.	Description
41	3-318-056-01	(UK)....LABEL, COUNTRY OF ORIGIN
42	3-318-057-01	(UK:SILVER)...LABEL, MODEL NUMBER
42	3-318-057-11	(UK:PEARL)....LABEL, MODEL NUMBER
43 ♦	3-318-060-01	(AEP)....SHEET, INSULATING
44	3-318-065-01	(AEP)....LABEL, CAUTION
45	3-318-066-01	(AEP)....LABEL, CAUTION
46	3-318-068-01	(AEP)....PAPER, INSULATING
47	3-318-069-01	INSULATOR
48	3-318-070-01	HEAT SINK, IC
49	3-701-769-00	PLATE, ORNAMENTAL
50	3-701-940-01	(UK)....LABEL, BEAB
51	3-701-999-00	LABEL, SERIAL NUMBER
52 ♦	3-703-678-00	(UK)....LABEL, CAUTION
53	3-817-114-00	PULLEY P8
54	3-831-441-XX	CLOTH, BLIND
55 ♦	3-890-725-00	PLATE (B), SHIELD
56	7-682-544-04	SCREW +P 3X3
57	7-682-949-01	SCREW, TOTSU PTPWH 3X10, TYPE2
58	7-685-135-61	SCREW +P 2.6X10 TYPE4
59	7-685-145-19	SCREW +BTP 3X6 TYPE2 N-S
60	7-685-146-19	SCREW +BTP 3X8 TYPE2 N-S
61	7-685-147-61	SCREW +P 3X10 TYPE4
62	7-685-151-61	SCREW +P 3X20 TYPE4
63	7-685-155-11	SCREW +P 3X40 TYPE2 NON-SLIT
64	7-685-203-19	SCREW +KTP 2X5 TYPE2 NON-SLIT
65	7-685-234-61	SCREW +KTP 2.6X8 TYPE4
66	7-685-234-69	SCREW +KTP 2.6X8 TYPE4
67	7-685-247-61	SCREW +KTP 3X10 TYPE4
68	9-911-825-32	STRING, TETRON DIAL
69	9-911-839-XX	CUSHION
70	9-911-846-XX	CUSHION
71	A-3247-096-A	HOLDER ASSY, CASSETTE
72	A-3255-048-A	HOLDER (V) ASSY, PULLEY
73	A-3255-049-A	HOLDER (S) ASSY, PULLEY
74	A-3255-050-A	HOLDER (H) ASSY, PULLEY
75	X-3316-513-1	(SILVER)...CASET LID ASSY
75	X-3316-513-2	(PEARL)....CASET LID ASSY
76	X-3316-514-1	(SILVER)...FRONT CABI ASSY
76	X-3316-514-2	(PEARL)....FRONT CABI ASSY
77	X-3316-515-1	(SILVER)...BATT LID ASSY
77	X-3316-515-2	(PEARL)....BATT LID ASSY

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···,
UPC···: μPC, UPD···: μPD···

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
101 ⚠	1-534-840-XX	(AEP)...CORD, POWER
101 ⚠	1-551-218-00	(UK)....CORD, POWER
102	2-291-065-00	BAG, PROTECTION
103	3-316-564-01	CUSHION (LEFT)
104	3-316-565-01	CUSHION (RIGHT)
105	3-318-055-01	INDIVIDUAL CARTON
106	3-701-310-00	(PEARL)....LABEL, PRODUCT COLOR
107	3-701-618-00	BAG, POLYETHYLENE
108	3-701-630-00	BAG, POLYETHYLENE
109	3-703-729-00	(SILVER)...LABEL (SMALL), COLOR
110	3-773-725-11	(UK)....MANUAL, INSTRUCTION
111	3-773-725-41	(AEP)...MANUAL, INSTRUCTION
112	3-794-972-51	(UK)....INSTRUCTION

MECHANISM SECTION

No.	Part No.	Description
301	3-316-596-01	PLATE, SPRING, REC
302	3-316-597-01	SPRING
303	3-316-598-01	SPRING
304	3-316-599-01	PANEL, HEAD
305	3-318-001-01	SPRING
306	3-318-002-01	STOPPER, FUNCTION PLATE
307	3-318-003-01	SPRING
308	3-318-004-01	SPRING
309	3-318-005-01	COLLAR, T ROLLER ARM
310	3-318-006-01	GEAR, FF
311	3-318-007-01	ROLLER, T
312	3-318-008-01	PLATE, PAD, FLYWHEEL
313	3-318-009-01	SPRING
314 ♦	3-318-010-01	RETAINER, FLYWHEEL
315	3-318-011-01	SPRING
316	3-318-012-01	SPRING
317	3-318-013-01	CUSHION, MOTOR
318	3-318-014-01	SCREW, SPECIAL
319	3-318-015-01	BRACKET, MOTOR
320	3-318-017-01	SPRING
321	3-318-018-01	COLLAR, EJECT SLIDE PLATE
322	3-318-019-01	LEVER, EJECT SLIDE PLATE
323	3-318-020-01	SHAFT (B), FUNCTION PLATE
324	3-318-021-01	SPRING
325	3-318-022-01	SPRING
326	3-318-023-01	LEVER, RWD BUTTON
327	3-318-024-01	SPRING
328	3-318-025-01	LEVER, FF BUTTON
329	3-318-026-01	LEVER, STOP BUTTON
330	3-318-027-01	SHAFT, FUNCTION PLATE
331	3-318-028-01	SPRING
332	3-318-029-01	LEVER, PLAY BUTTON
333	3-318-030-01	SPRING
334	3-318-031-01	LEVER
335	3-318-032-01	SPRING (Z)
336	3-318-033-01	STOPPER, PAUSE LEVER
337	3-318-034-01	SPRING
338	3-318-039-01	LEVER, REC PREVENTION
339	3-318-040-01	BASE, HEAD
340	3-318-041-01	LEVER, REC BUTTON
341 ♦	3-318-042-01	BRACKET, MS
342	3-318-044-01	BASE (RIGHT), BUTTON
343	3-318-045-01	BASE (LEFT), BUTTON
344	3-465-149-00	BELT, RUBBER
345	3-570-615-11	POLY-WASHER (DIA.1.2)

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- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

MECHANISM SECTION

No.	Part No.	Description
346	3-701-436-11	WASHER, 1.6
347	7-621-255-45	SCREW +P 2X6
348	7-621-770-87	SCREW +P 2.6X5
349	3-318-071-01	COLLAR SCREW
350	7-623-921-11	WASHER 1.7, NYLONE
351	7-623-922-11	WASHER 2.0, NYLONE
352	7-627-553-88	SCREW, PRECISION +P 2X7
353	7-685-780-01	SCREW +PTT 2X3 (S)
354	7-685-781-01	SCREW +PTT 2X4 (S)
355	7-685-782-01	SCREW +PTT 2X5 (S)
356	7-685-790-04	SCREW +PTT 2.6X4 (S)
357	7-685-855-01	+BVTT 2X10 (S)
358	7-688-001-01	W 2, SMALL
359	7-688-002-01	W 2.6, SMALL
360	X-3316-501-1	CHASSIS ASSY
361	X-3316-502-1	PLATE ASSY, DETECTION
362	X-3316-503-1	CLUTCH ASSY, RF
363	X-3316-504-1	PLATE ASSY,FUNCTION BUTTON
364	X-3316-505-1	FLYWHEEL ASSY
365	X-3316-506-1	PINCH ROLLER ASSY
366	X-3316-507-1	ARM ASSY, T ROLLER
367	X-3316-508-1	REEL ASSY, S
368	X-3316-509-1	REEL ASSY, T
369	X-3316-510-1	LEVER ASSY, PAUSE BUTTON

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CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501	1-501-299-11	ANTENNA, TELESCOPIC			
502 ♦	1-611-564-11	(UK).....PC BOARD, POWER			
502 ♦	1-611-564-21	(AEP).....PC BOARD, POWER			
503 ♦	1-612-500-11	PC BOARD, AUX			
504 ♦	1-612-501-11	PC BOARD, LED			
505 ♦	1-612-502-11	PC BOARD, HEADPHONE			
506 ♦	A-3215-572-A	MOUNT ASSY, MAIN			
B.P.F	1-231-892-00	FILTER, BANDPASS			
C1	1-102-954-00	CERAMIC	10PF	10%	50V
C2	1-101-884-00	CERAMIC	56PF	10%	50V
C3	1-102-945-00	CERAMIC	8PF	0.5PF	50V
C4	1-102-936-00	CERAMIC	3PF	0.5PF	50V
C5	1-102-951-00	CERAMIC	15PF	10%	50V
C6	1-102-951-00	CERAMIC	15PF	10%	50V
C7	1-102-951-00	CERAMIC	15PF	10%	50V
C8	1-102-952-00	CERAMIC	16PF	5%	50V
C9	1-102-943-00	CERAMIC	6PF	0.5PF	50V
C10	1-102-945-00	CERAMIC	8PF	0.5PF	50V
C11	1-102-129-00	CERAMIC	0.01MF	10%	50V
C12	1-102-935-00	CERAMIC	2PF	0.5PF	50V
C13	1-102-884-00	CERAMIC	56PF	10%	50V
C14	1-102-954-00	CERAMIC	10PF	10%	50V
C15	1-102-954-00	CERAMIC	10PF	10%	50V
C16	1-102-957-00	CERAMIC	18PF	10%	50V
C17	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C18	1-102-832-00	CERAMIC	330PF	10%	50V
C19	1-102-832-00	CERAMIC	330PF	10%	50V
C20	1-102-129-00	CERAMIC	0.01MF	10%	50V
C21	1-102-954-00	CERAMIC	10PF	10%	50V
C22	1-102-129-00	CERAMIC	0.01MF	10%	50V
C23	1-102-129-00	CERAMIC	0.01MF	10%	50V
C24	1-102-129-00	CERAMIC	0.01MF	10%	50V
C25	1-121-726-00	ELECT	0.47MF	10%	50V
C26	1-123-318-00	ELECT	33MF	20%	10V
C27	1-161-055-00	CERAMIC	0.022MF	10%	50V
C28	1-102-129-00	CERAMIC	0.01MF	10%	50V
C29	1-102-951-00	CERAMIC	15P	10%	50V
C31	1-101-005-00	CERAMIC	0.022MF		50V
C32	1-123-356-00	ELECT	10MF	20%	16V
C33	1-102-129-00	CERAMIC	0.01MF	10%	50V
C34	1-102-129-00	CERAMIC	0.01MF	10%	50V
C35	1-123-318-00	ELECT	33MF	20%	10V
C36	1-123-306-00	ELECT	47MF	20%	10V
C37	1-123-369-00	ELECT	4.7MF	20%	25V
C38	1-102-129-00	CERAMIC	0.01MF	10%	50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C39	1-101-005-00	CERAMIC	0.022MF		50V
C40	1-102-129-00	CERAMIC	0.01MF	10%	50V
C41	1-123-321-00	ELECT	220MF	20%	16V
C42	1-102-110-00	CERAMIC	220PF	10%	50V
C43	1-123-369-00	ELECT	4.7MF	20%	25V
C44	1-102-129-00	CERAMIC	0.01MF	10%	50V
C45	1-102-967-00	CERAMIC	22PF	10%	50V
C46	1-102-106-00	CERAMIC	100PF	10%	50V
C51	1-123-306-00	ELECT	47MF	20%	10V
C52	1-123-382-00	ELECT	3.3MF	20%	50V
C53	1-123-356-00	ELECT	10MF	20%	16V
C54	1-103-725-00	POLYSTYRENE	0.001MF	10%	50V
C55	1-123-306-00	ELECT	47MF	20%	10V
C56	1-123-381-00	ELECT	2.2MF	20%	50V
C57	1-161-018-00	CERAMIC	0.027MF	10%	25V
C58	1-161-018-00	CERAMIC	0.027MF	10%	25V
C59	1-102-124-00	CERAMIC	0.0039MF	10%	50V
C60	1-123-369-00	ELECT	4.7MF	20%	25V
C61	1-123-369-00	ELECT	4.7MF	20%	25V
C62	1-102-959-00	CERAMIC	22P	10%	50V
C101	1-130-532-00	MYLAR	0.22MF	10%	50V
C102	1-123-306-00	ELECT	47MF	20%	10V
C103	1-102-120-00	CERAMIC	0.0018MF	10%	50V
C104	1-102-112-00	CERAMIC	330PF	10%	50V
C105	1-123-306-00	ELECT	47MF	20%	10V
C106	1-102-074-00	CERAMIC	0.001MF	10%	50V
C107	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C108	1-123-369-00	ELECT	4.7MF	20%	25V
C109	1-161-020-00	CERAMIC	0.039MF	10%	25V
C110	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C111	1-161-974-00	CERAMIC	0.1MF	0	16V
C112	1-102-123-00	CERAMIC	0.0033MF	10%	50V
C113	1-130-506-00	MYLAR	0.0015MF	10%	50V
C114	1-161-974-00	CERAMIC	0.1MF	0	16V
C115	1-102-074-00	CERAMIC	0.001MF	10%	50V
C116	1-123-306-00	ELECT	47MF	20%	10V
C117	1-102-121-00	CERAMIC	0.0022MF	10%	50V
C118	1-123-307-00	ELECT	100MF	20%	10V
C119	1-130-497-00	MYLAR	0.15MF	10%	50V
C120	1-123-299-00	ELECT	1000MF	20%	6.3V
C128	1-123-307-00	ELECT	100MF	20%	10V
C301	1-123-297-00	ELECT	330MF	20%	6.3V
C302	1-123-307-00	ELECT	100MF	20%	10V
C304	1-123-306-00	ELECT	47MF	20%	10V
C305	1-123-307-00	ELECT	100MF	20%	10V

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- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
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UPC···: μPC, UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C306	1-102-112-00	CERAMIC	330PF	10%	50V
C307	1-102-112-00	CERAMIC	330PF	10%	50V
C308	1-102-123-00	CERAMIC	0.0033MF	10%	50V
C309	1-102-114-00	CERAMIC	470PF	10%	50V
C310	1-123-306-00	ELECT	47MF	20%	10V
C311	1-102-129-00	CERAMIC	0.01MF	10%	50V
C312	1-102-129-00	CERAMIC	0.01MF	10%	50V
C313	1-123-318-00	ELECT	33MF	20%	10V
C315	1-102-129-00	CERAMIC	0.01MF	10%	50V
C316	1-123-323-00	ELECT	470MF	20%	16V
C317	1-102-129-00	CERAMIC	0.01MF	10%	50V
C318	1-123-321-00	ELECT	220MF	20%	16V
C319 ⚠	1-102-129-00	CERAMIC	0.01MF	10%	50V
C320 ⚠	1-102-129-00	CERAMIC	0.01MF	10%	50V
C321 ⚠	1-102-129-00	CERAMIC	0.01MF	10%	50V
C322 ⚠	1-102-129-00	CERAMIC	0.01MF	10%	50V
C324	1-123-321-00	ELECT	220MF	20%	16V
C325	1-123-325-00	ELECT	2200MF	20%	16V
C326	1-123-299-00	ELECT	1000MF	20%	6.3V
C327	1-101-006-00	CERAMIC	0.047MF		50V
CF1	1-567-051-61	FILTER, CERAMIC (FM)			
CF2	1-567-051-61	FILTER, CERAMIC (FM)			
CT4	1-141-097-00	CAP, TRIMMER			
CT5	1-141-097-00	CAP, TRIMMER			
CT6	1-141-097-00	CAP, TRIMMER			
CT7	1-141-097-00	CAP, TRIMMER			
CT8	1-141-306-11	CAP, FILM TRIMMER			
CV1-4	1-151-460-11	CAP, TUNING, POLYETHYLENE			
D1	8-719-111-17	DIODE SD117			
D2	8-719-133-07	DIODE RD3.3E-B			
D3	8-719-802-05	DIODE TLR205			
D301 ⚠	8-719-200-02	DIODE 10E-2			
D302 ⚠	8-719-200-02	DIODE 10E-2			
D303 ⚠	8-719-200-02	DIODE 10E-2			
D304 ⚠	8-719-200-02	DIODE 10E-2			
D305	8-719-139-07	DIODE RD3.9E-B			
D307	8-719-815-55	DIODE 1S1555			
HE	1-543-176-00	HEAD, ERASE			
HRP	1-543-215-11	HEAD, RECORD/PLAYBACK			
IC1	8-759-112-22	IC UPC1222C			
IC2	8-759-200-62	IC TA7343P			
IC301	1-806-906-11	IC TA7668AP			
IC302	1-806-765-11	IC TA7232P			

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
J5	1-507-953-11	JACK, AC			
J101 ♦	1-508-658-00	CONNECTOR			
J102 ♦	1-508-658-00	CONNECTOR			
J301	1-507-793-00	JACK, LARGE TYPE (PHONES)			
L1	1-402-111-11	COIL, ANTENNA (SW)			
L2	1-402-112-11	ANTENNA, FERRITE-ROD (LW/MW)			
L3	1-402-112-11	ANTENNA, FERRITE-ROD (LW/MW)			
L4	1-402-110-11	COIL, ANTENNA (FM)			
L5	1-442-136-00	COIL, FM RF			
L6	1-406-111-00	COIL, OSC (SW) (E)			
L7	1-406-084-11	COIL, OSCILLATOR (SW 1)			
L8	1-406-110-11	COIL, OSC (LW)			
L9	1-408-935-00	MICRO INDUCTOR 470UH			
L10	1-404-529-11	COIL, IFT			
L11	1-404-530-11	COIL, IFT			
L101	1-409-379-11	COIL, TRAP			
L201	1-409-379-11	COIL, TRAP			
L301	1-433-280-11	COIL, BAIS OSCILLATOR			
L302	1-421-666-11	COIL, CHOKE 36UH			
MIC101	1-542-059-00	MICROPHONE, CONDENSER			
MIC201	1-542-059-00	MICROPHONE, CONDENSER			
Q1	8-729-216-13	TRANSISTOR 2SK161			
Q2	8-724-375-01	TRANSISTOR 2SC403C			
Q3	8-724-375-01	TRANSISTOR 2SC403C			
Q4	8-724-375-01	TRANSISTOR 2SC403C			
Q101	8-729-100-13	TRANSISTOR 2SC2001			
Q201	8-729-100-13	TRANSISTOR 2SC2001			
Q301	8-729-663-47	TRANSISTOR 2SC1364			
Q302	8-729-100-13	TRANSISTOR 2SC2001			
Q303	8-729-663-47	TRANSISTOR 2SC1364			
Q304	8-729-281-52	TRANSISTOR 2SC1815-Y			
R2	1-244-859-00	CARBON	270	5%	1/2W
R3	1-247-103-00	CARBON	68	5%	1/4W
R4	1-246-473-00	CARBON	1K	5%	1/4W
R5	1-246-525-00	CARBON	150K	5%	1/4W
R6	1-246-515-00	CARBON	56K	5%	1/4W
R7	1-246-511-00	CARBON	39K	5%	1/4W
R8	1-247-153-00	CARBON	8.2K	5%	1/4W
R9	1-247-119-00	CARBON	330	5%	1/4W
R10	1-246-473-00	CARBON	1K	5%	1/4W
R11	1-246-465-00	CARBON	470	5%	1/4W
R12	1-247-153-00	CARBON	8.2K	5%	1/4W
R13	1-247-153-00	CARBON	8.2K	5%	1/4W
R14	1-247-119-00	CARBON	330	5%	1/4W
R15	1-246-469-00	CARBON	680	5%	1/4W
R16	1-247-119-00	CARBON	330	5%	1/4W

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ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R17	1-246-523-00	CARBON	120K	5%	1/4W
R18	1-246-509-00	CARBON	33K	5%	1/4W
R19	1-246-441-00	CARBON	47	5%	1/4W
R22	1-246-499-00	CARBON	12K	5%	1/4W
R25	1-246-453-00	CARBON	150	5%	1/4W
R26	1-247-107-00	CARBON	100	5%	1/4W
R28	1-246-467-00	CARBON	560	5%	1/4W
R29	1-246-481-00	CARBON	2.2K	5%	1/4W
R30	1-246-441-00	CARBON	47	5%	1/4W
R31	1-247-107-00	CARBON	100	5%	1/4W
R32	1-247-155-00	CARBON	10K	5%	1/4W
R33	1-246-441-00	CARBON	47	5%	1/4W
R34	1-246-441-00	CARBON	47	5%	1/4W
R35	1-246-473-00	CARBON	1K	5%	1/4W
R36	1-247-153-00	CARBON	8.2K	5%	1/4W
R37	1-246-529-00	CARBON	220K	5%	1/4W
R38	1-246-485-00	CARBON	3.3K	5%	1/4W
R39	1-246-485-00	CARBON	3.3K	5%	1/4W
R40	1-246-523-00	CARBON	120K	5%	1/4W
R41	1-246-523-00	CARBON	120K	5%	1/4W
R42	1-246-513-00	CARBON	47K	5%	1/4W
R43	1-246-513-00	CARBON	47K	5%	1/4W
R101	1-246-515-00	CARBON	56K	5%	1/4W
R102	1-246-535-00	CARBON	390K	5%	1/4W
R103	1-246-469-00	CARBON	680	5%	1/4W
R104	1-246-465-00	CARBON	470	5%	1/4W
R105	1-246-469-00	CARBON	680	5%	1/4W
R106	1-246-485-00	CARBON	3.3K	5%	1/4W
R107	1-247-091-00	CARBON	22	5%	1/4W
R108	1-246-513-00	CARBON	47K	5%	1/4W
R111	1-246-499-00	CARBON	12K	5%	1/4W
R112	1-246-493-00	CARBON	6.8K	5%	1/4W
R113	1-246-491-00	CARBON	5.6K	5%	1/4W
R114	1-247-119-00	CARBON	330	5%	1/4W
R115	1-247-107-00	CARBON	100	5%	1/4W
R116	1-246-501-00	CARBON	15K	5%	1/4W
R117	1-246-507-00	CARBON	27K	5%	1/4W
R124	1-246-771-00	CARBON	100	5%	1/8W
R202	1-247-048-00	CARBON	390K	5%	1/8W
R203	1-246-789-00	CARBON	3.3K	5%	1/8W
R204	1-246-465-00	CARBON	470	5%	1/4W
R301	1-246-465-00	CARBON	470	5%	1/4W
R304	1-247-107-00	CARBON	100	5%	1/4W
R305	1-246-473-00	CARBON	1K	5%	1/4W
R306	1-247-155-00	CARBON	10K	5%	1/4W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R309	1-246-441-00	CARBON	47	5%	1/4W
R310	1-246-437-00	CARBON	33	5%	1/4W
R311	1-246-489-00	CARBON	4.7K	5%	1/4W
R312	1-247-155-00	CARBON	10K	5%	1/4W
R315	1-246-467-00	CARBON	560	5%	1/4W
R316	⚠1-206-439-00	METAL OXIDE	1	5%	2W F
R317	1-247-188-00	CARBON	4.7	5%	1/2W
R318	1-246-463-00	CARBON	390	5%	1/4W
R319	1-247-119-00	CARBON	330	5%	1/4W
RV1	1-226-652-00	RES, ADJ, CARBON 5K			
RV101	1-230-353-11	RES, VAR, CARBON 10K/10K			
RV102	1-230-353-21	RES, VAR, CARBON 10K/10K			
RV201	1-230-353-11	RES, VAR, CARBON 10K/10K			
RV202	1-230-353-21	RES, VAR, CARBON 10K/10K			
S1	1-554-729-11	SWITCH, LEVER SLIDE (BAND)			
S2	1-554-731-11	SWITCH, LEVER SLIDE (MONO/STEREO)			
S3	1-554-727-11	SWITCH, SLIDE (REC/PB)			
S4	1-554-730-11	SWITCH, LEVER SLIDE (FUNCTION)			
S5	1-554-725-11	SWITCH, LEAF (POWER)			
S6	1-554-726-11	SWITCH, LEAF (FWD/REW)			
S7	⚠1-554-728-11	(AEP)...SWITCH, SLIDE (VOLTAGE CHANGE)			
SP101	1-503-320-11	SPEAKER			
SP201	1-503-320-11	SPEAKER			
T301	⚠1-447-844-11	TRANSFORMER, POWER			

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " ● " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.